U.S. Fish & Wildlife Service Fall 2018

Fish & Wildlife News

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DAVID EISENHAUER/USFWS

departments

Margaret Everson, Principal Deputy Director

'Fresh Eyes' Needed for Conservation Challenges

It's been wonderful to see so many friendly and familiar faces on my return to the U.S. Fish and Wildlife Service. It's encouraging to know that plenty of experienced experts are helping steward the Service; addressing the inevitable challenges that arise; and reminding us of our heart, history and heritage.

I've also been excited to see fresh faces, new to the Service yet equally dedicated to our vital conservation mission. Over the past several weeks, I've enjoyed listening to many of these newer colleagues. I've been struck by their commitment to our goals and our legacy. They are excited to share how we can better engage with established partners and newer partners alike. They offer innovative ideas that broaden our community's reach and impact. And they have great ideas on how to and incorporate the benefits of a workforce with diverse backgrounds and experiences.

EILEEN HORNBAKER/USFWS

The Service has long understood that our country is constantly transforming—how we interact with each other, the ways we connect with nature and our ever-diversifying backgrounds. As a Service, we must continue to find and create new ways to embrace, celebrate and benefit from these differences as we welcome the next generation of conservationists. The diversity of our workforce is a key ingredient in remaining vital to the American public and fulfilling our conservation mission. Let me be clear: When I mention diversity, I'm referring to diversity of culture, ethnicities, gender, community, background and experience. Each attribute plays an important role in achieving our conservation mission.

In a story in this issue, biologist Sandra Sneckenberger of our South Florida ecological services office was asked why she volunteered to be a mentor. "I thought fresh eyes would be helpful," she said. She is absolutely correct.

With a workforce that looks like America, we'll find and develop new ideas and new solutions.

But it isn't just a workforce we're developing—it's conservationists, too.

Throughout the nation, we are making certain that all people have the opportunity to connect with nature through the time we spend teaching them fishing, boating, wildlife watching and the importance of biodiversity. Most of these people, of course, will never go on to work in the conservation community.

If we do our jobs well, however, all Americans will value the wildlife we are dedicated to, perhaps volunteering on a local refuge, teaching their children what birds make the sounds they hear in their backyards, and encouraging their communities and employers to invest in conservation.

This issue of *Fish & Wildlife News* shows just a few of the ways we bring new voices to the conservation choir. I am excited for our future and the future of conservation. □

MARGARET EVERSON, Principal Deputy Director of the U.S. Fish and Wildlife Service

'From Zero to 40': Trapping Diving Beetles Results in Increased Survival of Devils Hole Pupfish

One Saturday in December 2017, Service biologist Olin Feuerbacher was working at the Ash Meadows Fish Conservation Facility when he saw something that shocked him.

While reviewing a DVR recording of one of the giant fish tanks, constructed to mirror the Devils Hole pupfish's natural habitat, he witnessed a predaceous diving beetle ripping a pupfish larva to shreds.

"I just about fell out of my seat," said Feuerbacher. "I watched it for a minute or so and saw it repeated. A beetle tearing apart a 2–3 millimeter larva."

The Devils Hole pupfish is native to its namesake geothermal pool found in a limestone cavern on Ash Meadows National Wildlife Refuge in Nye County, Nevada. Given its limited range, its population would never have been large, but in 2013, it had dropped to as few as 35 individuals.

Research by the Service, National Park Service and University of Nevada, Reno, were already studying beetles in petri dishes to see how often they would attack eggs or larvae. This new recording proved the threat.

Although the Ash Meadows facility had been successful in establishing a colony of 75–100 pupfish in their 100,000-gallon tank, predation by beetles made recovery of eggs to raise in the laboratory nearly impossible.

So Ash Meadows staff designed and built special beetle traps capable of removing hundreds of beetles at a time. Within a week of their first use, biologists started seeing eggs.

"We went from zero to one egg in a month to over 40 in a week," said Feuerbacher.

However, the challenges didn't stop there.

A fungus was also killing the fish eggs. Biologists began using antibiotics and antifungals, eventually increasing egg hatch rates from 1 percent to 40 percent.

In 2018, the facility was able to produce five fish during the week of June 18–22.

"With a population of only 130 fish, this is a significant accomplishment," said Feuerbacher of the five fish.

"Overall, our goal is to have a healthy captive population of fish and we feel like we are headed in the right direction," said Mitch Stanton, research associate with the Great Basin Institute. "Eliminating the stressors like the predaceous diving beetles will help promote a robust growth in the population."

Feuerbacher and Stanton have seen a continued increase in the eggs collected, with the latest numbers averaging between 50 and 100 per week.

"The sky is the limit for us," Stanton said. □

JOHN HEIL, External Affairs, Pacific Southwest Region

(Left) Although the Service has been successful in establishing a colony of Devils Hole pupfish in their 100,000-gallon tank, predation by beetles has made recovery of eggs to create a captive-raised laboratory population nearly impossible. (Right) Olin Feuerbacher counts Devils Hole pupfish in a tank at Ash Meadows Fish Conservation Facility.

OLIN FEUERBACHER/USFWS

AMBRE CHAUDOIN/NPS

ENGAGING A NEW GENERATION

From Mackerel to Mermaids

On a warm Sunday morning at Dana Point Harbor in California, 30 kids and their families disembarked the Dana Pride fishing boat with big smiles and their catch of the day. Waiting on the dock were mermaids they had seen near the boat earlier that afternoon.

"Say, call me on my shellphone!" joked one of the mermaids to Melody, a spunky young fisherwoman holding a conch to her ear. It was a fitting end to a day spent on the water with her peers with the Fish for Life organization, which provides free fishing instruction for children with special needs.

Whether catching mackerel from a pier or spotting mermaids and dolphins from a boat, it was a great summer to get Californians of all ages hooked on fishing. From Long Beach to San Diego, people flocked to the coast for fishing rodeos and derbies sponsored by sportfishing clubs, nonprofits and the California Department of Fish and Wildlife.

LISA COX/USFWS

A successful participant in Fish for Life.

For Service staff at San Diego National Wildlife Refuge Complex, this meant reaching a new audience. Fishing isn't typically a draw there; wildlife viewing and photography are more common activities. As part of an effort to connect urban audiences with nature, and in response to a recent Secretarial Order 3356 to support and expand hunting and fishing, refuge staff searched for new ways to engage. Angie Horn, SoCal Refuge Project partnership specialist with the National Wildlife Refuge Association (NWRA), helped foster new connections and identified suitable outreach opportunities.

"These events are great for attracting audiences who live in the city but aren't aware of places where they can explore nature close to home," Horn said. "Fishing is a perfect way to get people excited about wildlife and visiting refuges."

Staff at the complex, along with Horn and the Friends of Seal Beach NWR, participated in five fishing events during the summer, reaching thousands of people (most of them youth). At each event, staff and volunteers manned an information table where families picked up Service coloring books and fish posters, and learned about local wildlife refuges. After earning trophies, rods and reels, a saltwater catch or in some cases, all three, excited kids left with their families to enjoy the rest of their weekends.

"It was great to do an event in our hometown and rewarding to hear the younger kids share what they had just learned from us with their families," said Seal Beach National Wildlife Refuge Manager Rick Nye, after the Seal Beach Pier Fishing Derby on August 18.

Other summer events were the Belmont Pier Fishing Rodeo in Long Beach on August 4, San Diego Young Anglers Tournament on Shelter Island on August 11, and two Fish for Life trips in Orange County on August 26 and September 23.

The connection to Fish for Life was made thanks to star volunteers Marty Golden and Pete Haaker, who are both Navy retirees, members of Friends of Seal Beach NWR and active in other charitable organizations, including one that sponsored the Fish for Life trips. As former marine biologists for NOAA and California Department of Fish and Wildlife respectively, Golden and Haaker understand the importance of getting kids excited about conservation, particularly near the coast. During the Belmont fishing rodeo, Golden invited Horn to participate in a Fish for Life trip, and now the Service and NWRA will continue to attend future events.

This is only the beginning of strengthening partnerships with the fishing enthusiasts of Southern California and the partners that make these fishing events possible. □

LISA COX, San Diego National Wildlife Refuge Complex, Pacific Southwest Region

ANTHONY HEWITT/USFWS

BIG Grant Helps Marina Increase Access to Top Michigan Attractions

After receiving a Boating Infrastructure Grant (BIG) through the Service's Wildlife and Sport Fish Restoration Program, Bayshore Marina in Munising, Michigan, opened 24 new slips for recreational boaters traveling through Lake Superior. The grant will help increase boating access while preserving the Lake Superior experience.

"We get to live and work with one of the greatest natural wonders in the Midwest right out our back door," said Devin Olson, Munising's city manager. "Our marina expansion gives us the ability to share these wonders with boaters who previously may not have been able to access our area."

Munising is the gateway community for one of Michigan's most popular tourist attractions—Pictured Rocks National Lakeshore. In addition to this famous park, Munising also offers access to the Grand Island National Recreation Area and the Alger Underwater Preserve. Visitors come to enjoy the natural beauty of Lake Superior's southern shores, its beaches, dunes, waterfalls, cliffs and forests. Many of these attractions are best viewed by boat, resulting in high demand for transient boat slips in Munising.

"We serve as the west gateway to Pictured Rocks National Lakeshore and have seen a large increase in visitors in the past decade," said Olson. "A portion of this demand is comprised of recreational boaters who make Munising a destination rather than a stop."

The Upper Peninsula of Michigan offers the best location for viewing the northern lights in the Lower 48 because of dark skies and high latitude. The southern shore of Lake Superior allows for unobstructed views of the night sky all the way down to the horizon. To help preserve this unique viewing opportunity, the walkway portion of the expansion is lit with glow stones—resin pebbles made from a luminescent material that glows in the dark without the use of electricity, causing minimal light pollution.

ANTHONY HEWITT/USFWS

By adding 12 50-foot floating slips and 12 40-foot floating slips to the marina, boats larger than 30 feet will have access for the first time. Before the expansion, transient slips were completely occupied 75 percent of the time during boating season and recreational boaters were turned away. □

MELISSA A. CLARK, External Affairs, Midwest Region

(Top) Grand Island East Channel Light is a restored lighthouse. (Above) Floating slips featuring low-light pollution glow stones.

Counting Sheep Hunts

SID SLOAN/USFWS

Despite the seeming hostility of Cabeza Prieta National Wildlife Refuge, desert bighorn sheep make it home.

Autumn is for remembering. The last light of summer yields to the first beautiful days of fall. This time of year is a communion between what was and what might be. Fall brings with it hunting seasons—and naturally, memories of seasons past.

Len Anderson of Tucson, Arizona, a retired high school chemistry and biology teacher and baseball coach, remembers desert bighorn sheep hunts. Three generations of Andersons—Len and his father and his son—have harvested desert bighorns on Cabeza Prieta National Wildlife Refuge.

"Some hunters wait a lifetime to draw a bighorn tag in Arizona, and some never do," Anderson said. "For three of us to draw tags over the years and take sheep off the refuge has got to be extraordinarily rare." Tags are essentially hunting permits for a particular species.

The Arizona Game and Fish Department issues desert bighorn sheep tags by lottery. The numbers of licenses available are few while applicants are many: In 2017, 984 hunters applied for 12 available permits at Cabeza Prieta Refuge. That number varies from six to 12 each autumn, and depends on the sheep population size.

Len's son, Dennis, was the first Anderson to harvest a sheep on the refuge, in 1994. He was only 16 years old.

"Dennis had already taken a mule deer and a Boone and Crockett pronghorn [a trophy animal]. I introduced him to hunting when he was quite young, passing onto him what my dad passed onto to me," Anderson said.

In 2008, Anderson's father, Leonard, after 40 years, finally drew a sheep tag to hunt at the refuge.

"It was an odyssey," Anderson said. "I am most proud of my dad—at 80 years old, we knew it would be a tough hunt in the wilderness. But he did it."

The elder Anderson is no stranger to adversity. This son of a Finish immigrant carpenter volunteered to join the U.S. Navy in World War II—at 15 years old—promising his father he would complete high school if he came home. He didn't earn his diploma, but did one better: a bachelor's degree in civil engineering from the University of Arizona, followed by a license in structural engineering.

"He was a strong figure in the home, and I saw a softer man when we hunted together," Anderson said. "Dad introduced me to the solitude you find in the desert."

There is much solitude to be found at Cabeza Prieta Refuge. It is arguably one of the most rugged places in the United States. It is remote beyond words and harsh for humans. The heat is searing—commonly 115 degrees in summer. The refuge is expansive—1,344 square miles—and 93 percent of that is designated wilderness. If you want to see it, you go by foot. The refuge is larger than Rhode Island by 131 square miles, but absent a single permanent inhabitant.

But it's not short on living creatures. Saguaros stand steadfast on the desert floor. Sonoran pronghorn scurry over the sandy playas. Six species of rattlesnake make a living among the basaltic boulder-strewn soils. You can hear gilded flickers drum and flit about cholla and mesquite and ocotillo and other plants that have more thorns and spikes than leaves. And there is the desert bighorn sheep, an object of respect and affection among the Andersons.

Len Anderson would finally get his desert bighorn sheep in 2017. Though he had remarkably drawn a tag the same year as his boy Dennis, attentions during that hunt were devoted to his son. This time, however, at 68 years of age, Anderson was of the mind this might be his last sheep hunt. After several scouting trips and much preparation to get in what he calls "sheep shape," he was the third Anderson to harvest a bighorn ram at Cabeza Prieta.

"My 39-year-old son helped me pack out the ram just as I had helped him 23 years earlier," Anderson said. "My dad, approaching his 90th birthday, could not participate in the hunt, but the first phone call I made was to him." □

CRAIG SPRINGER, External Affairs, Southwest Region

Tiger Cub Rescued from Wildlife Smugglers Has Bright Future

LIONS, TIGERS AND BEARS WILDLIFE SANCTUARY

Moka in his new home at Lions, Tigers & Bears sanctuary in Alpine, California. A hybrid Bengal tiger, Moka was an extremely sick and emaciated cub when confiscated at the Otay Mesa Port of Entry on California's southern border in August 2017.

With more than 8 million vehicle crossings in 2017, Otay Mesa Port of Entry, 25 miles southeast of San Diego, is one of the busiest Mexican border crossings in California. On the night of August 23, 2017, a Customs and Border Protection (CBP) Officer peered into a car and noticed a small feline on the floor of the front seat. The occupants of the car said it was a domestic cat, but on closer inspection, the officer knew it was no house cat. The feeble feline with unusual markings turned out to be an extremely sick and emaciated hybrid Bengal tiger cub: the latest victim of the illegal wildlife trade.

It is exceedingly rare to find a tiger cub being smuggled across the border, and according to Erin Dean, Service resident agent in charge for Southern California, the only other known cub smuggling in the state occurred 20 years ago.

CBP immediately transferred the animal from this latest case to the Service's Office of Law Enforcement, which in turn placed the cub with skilled veterinarians at the San Diego Zoo's Safari Park in Escondido, California.

Staff at Safari Park gave the cub the name Moka. He soon paired with a Sumatran tiger cub transferred to the facility from the Smithsonian National Zoo in Washington, DC, for companionship.

Moka is a hybrid Bengal and therefore not suitable for a captive breeding program; Service staff would have to find somewhere else to house him in the long term.

Fortunately, the wildlife sanctuary Lions, Tigers & Bears in Alpine, California stepped up. This big cat and exotic animal rescue facility is federally permitted to house Moka, a cat that will eventually grow to be 300 pounds.

Moka's journey has brought the subject of illegal wildlife trafficking into the limelight. "Wildlife trafficking is huge because it is profitable," said David Shaw, special agent in charge of Homeland Security Investigations in San Diego. "It takes a coordinated effort among agencies to intercept and prosecute these crimes."

At a July news conference welcoming Moka to his new home at the sanctuary, Bobbi Brink, founder and director of Lions, Tigers & Bears, said her goal "is to stop the exploitation of animals like Moka."

The rescue, rehabilitation and permanent rehoming of Moka was accomplished through strong federal and local partnerships.

In early 2018, the two smugglers were successfully prosecuted by the U.S. Attorney's Office in Southern California and sentenced to prison.

"To prevent wildlife like Moka from being exploited and to maintain healthy populations of wildlife in their native habitats, please contact the U.S. Fish and Wildlife Service to ask about any products you plan to bring into the U.S. after traveling abroad," Dean said. □

JANE HENDRON, External Affairs, Pacific Southwest Region

LOS HERMANOS FAMILIA

The "Vamos a Pescar, Let's Go Fishing" event held its 10th fishing day in August.

ENGAGING A NEW GENERATION

"Vamos a Pescar, Let's Go Fishing" Brings Families Together

When Frank Garcia's father, an area farmer, made a last request to go fishing with the entire family after a heart bypass operation, Frank and wife Christy agreed to organize a family fishing event. Sadly, Gonzalo Garcia Sr., died the next morning.

For several years Frank struggled with the loss of his dad. One day Christy suggested that they fulfill that last request to go fishing by holding a community-wide fishing event for dads and their children in the late summer in West Texas.

"My daddy's work as a farmer often prevented him from getting to participate in family outings and activities. Knowing that many families are often busy, we decided to use fishing as a hook to bring families together," Frank said.

Christy said that the last words from her father-in-law to them were, "Vamos a pescar, let's go fishing," which prompted the name of their event.

With the help of many friends and organizations, they formed Los Hermanos Familia, which means the brothers family. More than 250 volunteers helped bring the event into fruition.

"Our objective is strengthening families, building community," said Christy.

The attendance grew annually—it now serves up to 5,000—and the event remains free, encouraging families to enjoy the great outdoors before the children return to school.

Also, on the day of the fishing event—participants do not need a fishing license, receive a free lunch and activities, have access to loaner poles and fish at a clean lake that the volunteers clean themselves.

The Service helps out, stocking the lake with fish raised at Tishomingo National Fish Hatchery in Tishomingo, Oklahoma.

"We can't guarantee they'll catch fish but do guarantee they'll have a great time and make lasting memories," Frank said. □

CHRISTY MARTINEZ-GARCIA

Nature Learning Made Easy

LISA COX/USFWS

Summer, winter, fall or spring—nature is a great source of learning. Help teachers bring some nature into your child's classroom. Tell a teacher you know about free teacher resources and Service curricula that meet state and national standards: <fws.gov/refuges/education/teachersResources.html>

All resources, lesson plans and student activity guides are FREE to download! Resources include videos, activity booklets, worksheets and education guides for use both inside and outside the classroom.

ENGAGING A NEW GENERATION

Service, Partners Go 'Virtually Wild' in Texas

Virtually Wild! Texas brings nature to students in schools, hospitals and other institutions that serve young people with limited access to nature.

"We always want to teach kids about nature in nature, but not everyone has that choice," said Nancy Brown, the coordinator of the Service's Houston Community Partnerships and Engagement Program.

With virtual "field trips," conservation partners bring to life wildlife stories from the region to these students, who "meet" wildlife professionals from across Texas and learn about careers in conservation.

"This started as an effort to give pediatric patients at the University of Texas MD Anderson Cancer Center an opportunity to safely enjoy nature and get a break from their cancer treatment," Brown said, "and has evolved to include young people who cannot access nature, for whatever reason."

Using a digital platform, students virtually travel to coastal wetlands, forests, prairies, zoos and other locations where they can learn about and experience nature.

Students and teachers are able to ask questions and get up close and personal with presenters and wildlife. »

NANCY BROWN/USFWS

Students get a close view of monarch eggs and caterpillars during this Virtually Wild! Texas program hosted in the pocket prairie of the University of Texas MD Anderson Cancer Center.

COURTNEY CELLEY / USFWS

The goal is to provide nature-related activities that educators can use in the classroom.

Educational materials cover nature-related topics, ranging from monarch butterfly migration to reptile adaptations to forest management. All programs emphasize potential career opportunities.

Virtually Wild! Texas is designed to encourage young people to get out into nature and consider a career in conservation.

The program is reaching thousands of students thanks to the partnership of the Service, The Nature Conservancy in Texas, Katy Prairie Conservancy and Region 4 Education Service Center.

Based out of Houston, Texas, the virtual programs highlight the important work done by a diversity of partners. Service field trips include:

Dip-netting for invertebrates on Anahuac National Wildlife Refuge is a great way to learn about the biological diversity of coastal wetlands.

Alligators, snakes and bull frogs are the highlight of this program, which is designed to teach participants about the importance of wetlands to wildlife and people.

At Brazoria National Wildlife Refuge, students learn about reptile adaptations.

They are able to get a close look at alligators and snakes, and the features that allow these species to survive and thrive in their environment.

"It's gratifying when you are standing in coastal wetland habitat on Brazoria National Wildlife Refuge conducting a live, virtual program with alligators literally bellowing in the background," Brown said. "It really gets everyone's attention. Especially the kids in Lubbock."

To learn more about Virtually Wild! Texas, contact the Service's Houston Community Partnerships and Engagement Program at 830-220-4760 or <nancy_brown@fws.gov>.

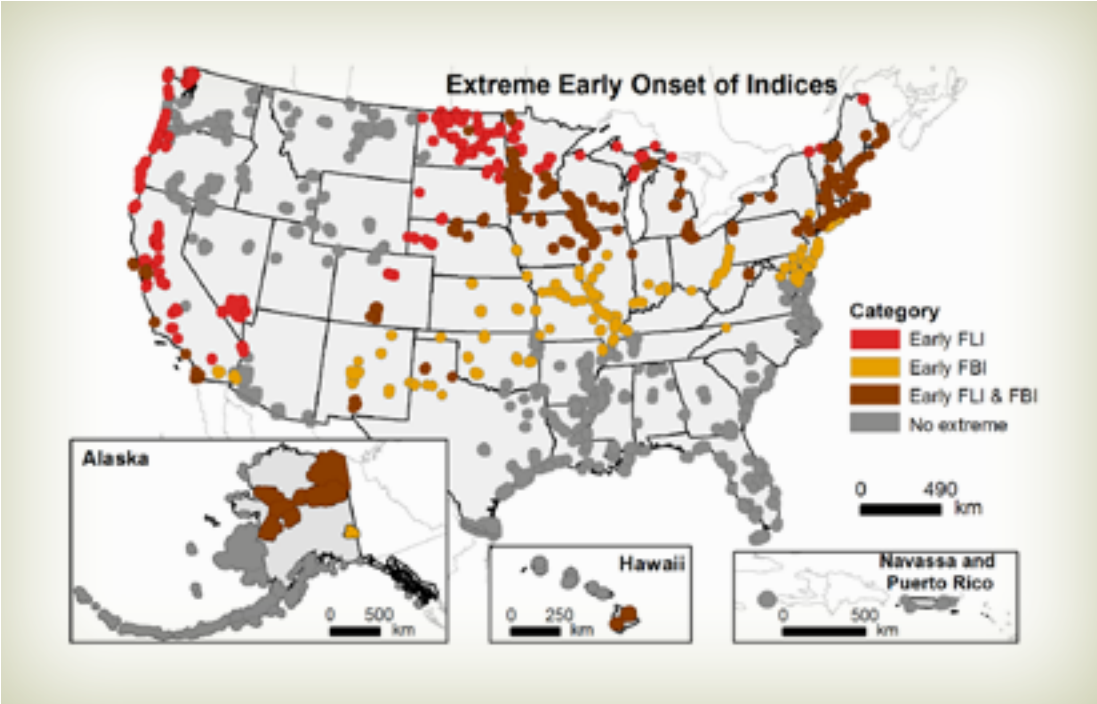
For educators interested in registering for a virtual program, visit Region 4's videoconferencing site <bit.ly/2DKNbpN>. □

Will Migratory Birds Keep Up as Spring Comes Earlier?

TONYCASTRO/WIKIMEDIA COMMONS

Migratory birds face a daunting task each year—travel an immense distance and arrive in time to optimize food and nesting resources to raise young. Food resources and nesting conditions are tightly linked to the leafing and blooming of vegetation in the spring, which has become more variable in recent years. How are these changes likely to impact birds? A team of researchers from the USA National Phenology Network (USA-NPN) and U.S. Geological Survey endeavored to find out in a new study.

The team explored how the timing of spring is changing across national wildlife refuges in the four major migratory flyways of North America. To measure the timing, the team used the USA-NPN's Spring Index models, which predict the onset of leafing and blooming in early-season plants based on local weather conditions. They examined when spring leafing and blooming arrived at refuges over the last 100 years and compared these dates to the arrival in recent years.



National wildlife refuges with extremely early recent spring onset relative to the historical range of variability. Colors represent refuges with extremely early First Leaf Index, First Bloom Index, both or neither.

The team noted that, in recent decades, spring has arrived early in three-quarters of refuges and extremely early in half of refuges. And spring is advancing significantly faster in the north for the Central, Mississippi and Atlantic flyways.

These findings were confirmed by analysis of changes in the wintering and breeding ranges of two bird species—the blue-winged warbler and whooping crane. Spring is arriving earlier in the northern breeding ranges of these species than in their southern wintering areas. These examples highlight the challenge facing long-distance migrants—these birds may arrive to their breeding grounds to find they have missed the peak in available food resources that are key to their success. This mismatch may lead to declining breeding success and survival, which ultimately will influence their population.

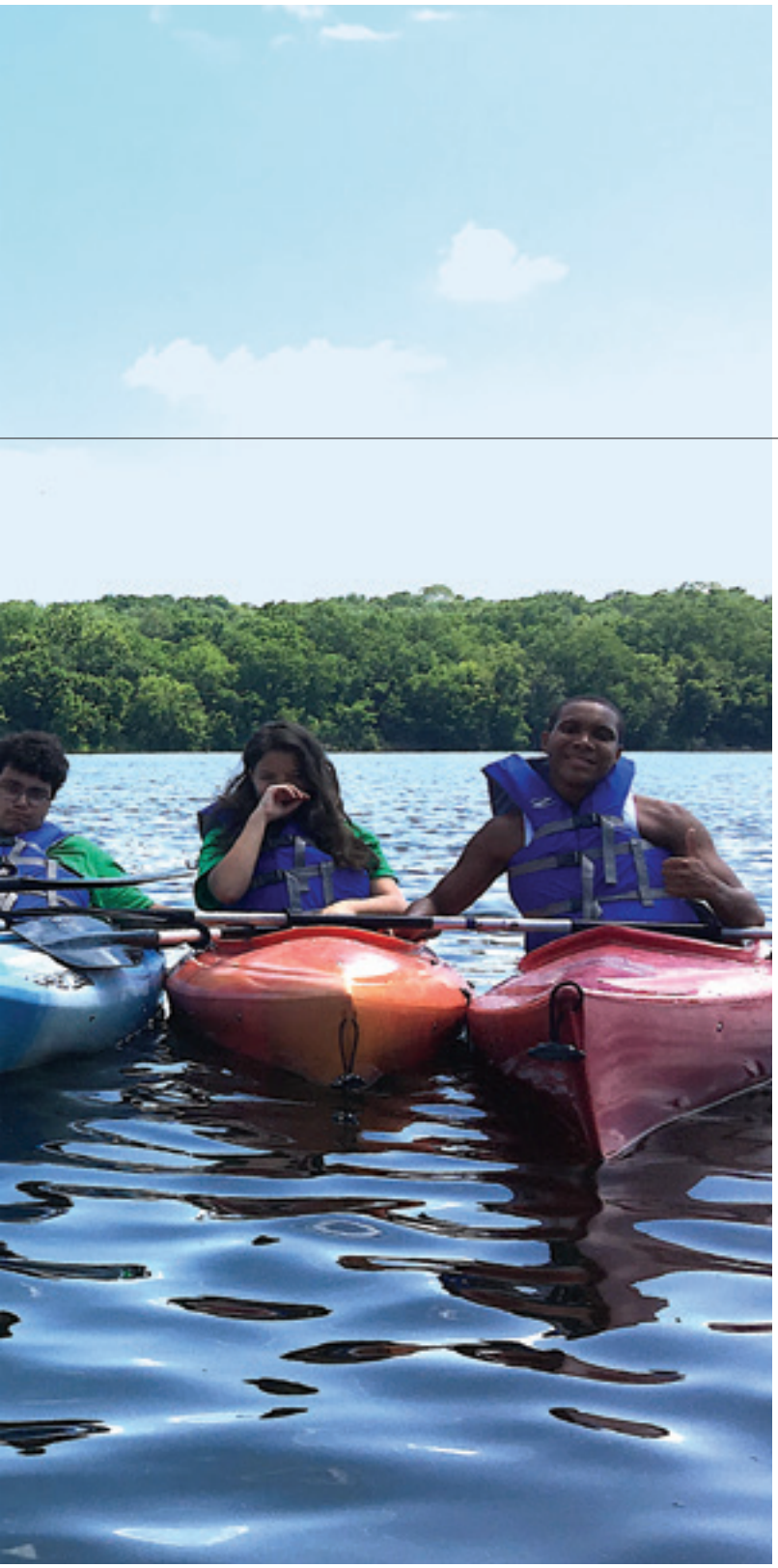
These findings have implications for refuge management as well as visitor services. Managers may need to consider longer planning windows, as well as restoration and maintenance of habitat, such as planting species adapted to future climate conditions and acquiring additional or more suitable habitat to support species of interest. Visitor services staff may find that the presence of birds and other species of interest to visitors is more difficult to predict.

You can explore these findings via a new tool called Long-term changes in the Status of Spring (fws.usanpn.org/status-spring) on the website of the USFWS Phenology Network, a joint project of the Service and the USA National Phenology Network. Click on a refuge to find out the average onset date of spring in recent decades, how the onset of spring in recent decades compares to a long-term average and how the timing of spring at that refuge fits into the larger migratory flyway. □

? MORE INFORMATION

Read the study: <https://bit.ly/2oZSKHn>

ENGAGING A NEW GENERATION OF CONSERVATIONISTS



I am not old! But I know the U.S. Fish and Wildlife Service needs to attract young people to conservation careers. We need them to fill our workforce with new thinkers, and we just plain need people who get the importance of conservation to society.

As the demographics of the country change, appealing to the new generation more and more means looking to people of color and of diverse ethnicity. These are people who have historically been underrepresented in the Service.

These stories tell about some of our work to change that.

MATT TROTT, External Affairs, Headquarters

FISHING FRIDAY

Teen leaders teach a new generation of Alaskan anglers.

By LISA HUPP

USFWS

SHELLY LAWSON/USFWS

(Top) Anglers test the waters of Buskin River. (Above) "Fishing Friday" anglers walk through the woods.

On a beautiful Friday afternoon,16 kids from Kodiak, Alaska, took to the Buskin River to find out what it takes to become an angler. Small hands held rods and reels, and made their first casts into waters with the hope of catching a salmon or Dolly Varden.

Kodiak is a fishing town, and salmon are the lifeblood of this Alaskan island and of Kodiak National Wildlife Refuge. The annual summer salmon return from ocean to river sustains both people and wildlife throughout the year, and attracts sport-fishing enthusiasts from around the world.

For kids growing up there, though, a first-time fishing experience isn't always right out the back door. Young conser-vation leaders in the community are looking to change that. This July, the Kodiak Refuge Youth Conservation Corps (YCC) developed and led the refuge's first ever "Fishing Friday," an environmental education event for community youth who have had little or no opportunity to go fishing.

"The event idea came from the need to diversify and increase access to environmental education in the Kodiak community," said Kyla Villaroya, 2018 YCC crew leader, who grew up in Kodiak and now attends D'Youville College. She sees the service-learning focus of YCC as an opportunity for her crew to reach beyond the established audience of youth enrolled in the refuge's popular Salmon Science Camp. "We can broaden our community identity of environmental science learners and outdoor enthusiasts. We are trying to engage more people with their natural resources."

Over the past three years, the YCC has worked on projects that bring elements of Salmon Camp to new and diverse young nature lovers. In 2016, Kodiak Refuge education specialist Shelly Lawson saw the outreach potential at the local school district's free summer lunch program, and the first "Pop-Up Salmon Camp" led by YCC members engaged more than 100 youth in an afternoon.

"Some children don't have rides to come to our programs and also may not have their own fishing gear," Lawson observed. "We were trying to find a way to bring our programs to youth where they are, and the lunch program was the ideal location with 100-300 children congregating there every day for lunch."

Building on the wild success of the pop-up camp, the crew this year decided to add one of the most popular elements of Salmon Camp: fishing day. They again reached out to the lunch program participants and provided transportation to the river, a free fishing lesson, snacks and needed gear. They also brought in additional help, including visiting young adults from the Arctic Youth Ambassador Program.

The result? A forest of fishing rods and a swarm of kids ages 5-14 descended onto the gravel banks of Kodiak city's closest salmon river, accompanied by a crew of teens ready to get their feet wet in environmental education. With enthusiasm, they explored the natural habitat of hopeful anglers and played outdoor games until it was their turn with a rod and line.

"Some had never been fishing before, never used the gear, so they learned how to cast their rod," Villaroya said. "They also put their patience to the test and experienced how much waiting a fisherman has to do. They learned about how fishing can promote camaraderie; by the end of the day some of the kids who were supposed to be playing games came over to suggest prime spots that their fishing friends should cast in."

For some of the teens, teaching a group of hopeful anglers was also a learning experience. The YCC program at Kodiak Refuge is a chance for high school students to explore various careers in conservation available at the refuge—everything from maintenance to field biology to environmental education. They learn as they work, building skills and confidence along the way.

Villaroya recalls her first summer as a YCC crew member in high school, as she looked for career possibilities in her hometown. "Growing up, I always treasured the environment and wanted to break into outdoor and environmental education, so this program was the perfect opportunity. The novelty of that job made such an impact on me—I would do it all over again if I could! And so I did, as a crew leader."

Learning new skills in the outdoors and sharing that knowledge with others is a hallmark of the Kodiak YCC summer. For Villaroya, "Fishing Friday" exemplified the process of discovery and teamwork that has kept her coming back as a program lead. "My favorite part was at the end when everyone—participants and leaders—reflected on how it went. To the kids especially, it was such a novel experience, and they came away knowing they could learn something new very well. □

LISA HUPP, External Affairs, Alaska Region

USFWS

Crew leader Kyla Villaroya (front) and the rest of the 2018 Kodiak Refuge Youth Conservation Corps.

BRIDGING THE GAP

Carlsbad Fish and Wildlife Office inspires the next generation through student experiences.

By JOANNA GILKESON

(Left) Directorate Fellow Luke Anthis helps Carlsbad Office biologists clear out burrowing owl burrows in San Diego County. (Right) Sandra Hamilton helped band and release captive-bred endangered Ridgway's rails during her time at the Carlsbad Office.

JOANNA GILKESON/USFWS

KOURTNEY STONEHOUSE/USFWS

"Before this internship, I didn't know much about the U.S. Fish and Wildlife Service, or what they actually did. But, after learning more about what the Service actually does and the different opportunities available, I'm definitely interested in pursuing a potential career with U.S. Fish and Wildlife Service," Luke Anthis said this summer upon the completion of his Directorate Resource Assistance Fellowship at the Service's Carlsbad Fish and Wildlife Office.

CLARK WINCHELL/USFWS

Directorate Fellow Cherie Barnes and UCSD intern Daniel Banyai-Becker assess San Bernardino flying squirrel habitat in the San Bernardino National Forest.

The Directorate's Fellowship Program draws from a nationally competitive pool of applicants. During his 12-week fellowship, Anthis helped track conservation efforts on the ground for threatened and endangered species.

Anthis was one of four students hired by the Carlsbad Fish and Wildlife Office to assist with a broad range of conservation projects in 2018, including collecting habitat data, releasing endangered Ridgway's rails and tracking compliance for interagency consultations.

While Anthis tracked project compliance, Sandra Hamilton, University of California, San Diego (UCSD), student and directorate fellow, spent her summer getting to know the Ridgway's rail and working on its species status assessment, which is required by the Endangered Species Act. Another fellow, Cherie Barnes of A&M University, and student intern from UCSD, Daniel Banyai-Becker, had a more rustic experience working for the Carlsbad Office. Barnes and Banyai-Becker spent their summer living in the woods of the San Bernardino National Forest, collecting habitat data for the San Bernardino flying squirrel.

Banyai-Becker's internship stems from a partnership between UCSD and the Carlsbad Office initiated three years ago. This local internship program seeks to provide career experience to students pursuing their degrees through UCSD's Environmental Systems program. Since the inception of this partnership, Clark Winchell, Chief of the Carlsbad Office's Conservation Partnerships Program, has hired UCSD interns to help with his projects. "The goal is to help our interns develop a conservation ethic, and to do that broadly, reaching as diverse of an audience as we can," said Winchell. "Whether or not they decide to become conservation professionals or go on to other careers, we hope they hold onto their conservation ethic," he added.

In addition to the Directorate's Fellowship Program and the UCSD partnership, the Carlsbad Office hires interns through the Veteran's Affairs Nonpaid Work Experience Program, which provides job experience and a stipend to veterans while transitioning to civilian life. These varied internship programs encourage problem-solving, critical thinking and field work; and often provide the basis for a future thesis, senior project or job opportunity.

"I can't think of a single student that either hasn't gone on within the profession or graduate school," Winchell said. "They've had a chance to learn about who the Service is and what we do, and hopefully they'll carry that with them for the rest of their lives." □

JOANNA GILKESON, External Affairs, Pacific Southwest Region
Contributing: MAIDELINE SANCHEZ

Recruiting the Next Generation of Service Professionals

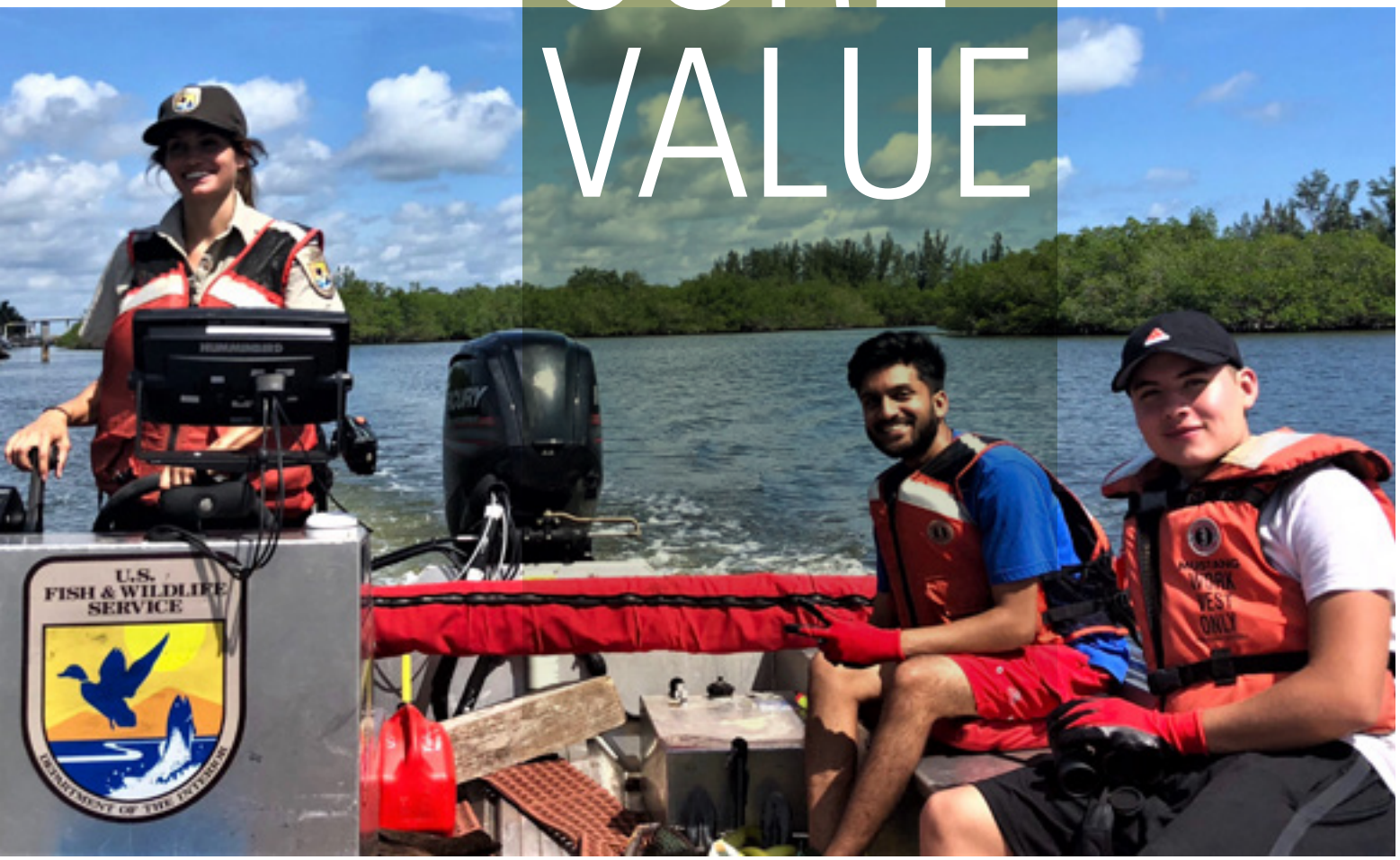
The U.S. Fish and Wildlife Service Directorate Resource Assistant Fellowship Program (DFP) aims to recruit diverse groups of current undergraduate and graduate students and prepare them for careers in conservation through targeted training, exposure to inspirational leadership and experience working with Service employees on rigorous projects. Once fellows successfully complete their fellowship projects and graduate from their current degree program, they become eligible for permanent, full-time positions.

This year, 47 students worked at projects at Service locations across the country. To date, 227 students have participated in the program, and about 80 have chosen careers within the Service. More are eligible for direct hire within the land-managing agencies of the Department of the Interior.

If you have upcoming vacancies in your office and are interested in learning more about Fellows that will be eligible for hire very soon, please contact your Regional Human Resources staff who will help you identify qualified, currently eligible fellows.

CHRISTINE PETERSON, National Conservation Training Center

CORE VALUE



JOHN GALVEZ/USFWS

South Florida Ecological Services Office engages with people from groups underrepresented in the Service's workforce.

By KEN WARREN

From left, Shana DiPalma, Shane Mathew and Nicolas Victoria cruise Indian River Lagoon looking for derelict crab traps.

Although he lives in Vero Beach, Florida, Shane Mathew never envisioned himself trekking around Indian River Lagoon in a Service motorboat searching for and removing derelict crab traps,yet as a volunteer he did.

"It was fun and a unique learning experience!" he said. "We removed three or four illegal traps that day. I feel good about doing something that helped maintain the integrity of the lagoon."

Mathew, a sophomore mechanical engineering student at the University of South Florida (USF) in Tampa, is one of several young college students who are or were volunteering or interning with the Service's South Florida Ecological Services Office (SFESO) as a direct result of the office's Diversity Outreach Program.

Although Mathew isn't majoring in biology or any earth science, he's an avid fisherman who has always loved being outdoors. He wanted to engage with the Service because he wants to learn as much as he can about conservation and the environment, and combine that knowledge with what he's learning about engineering at USF. "I eventually hope to work for a company where I can be a leader in improving the environment and conservation practices via engineering," he said.

How Mathew became a Service volunteer is somewhat coincidental.

"We were running a booth at a USF Job Fair. Shane stood out because he introduced himself as being from Vero Beach," said Tyson McCoy, a Service program support specialist in the office. "It worked out well for us that he could come in and volunteer whenever he was home on a school break. He has also done some work for us remotely while at school in Tampa."

McCoy serves on the office's Diversity Outreach Team with supervisory biologists Nikki Lamp and Miles Meyer. The team was formed in 2016 in an effort to find ways to reach out to and engage with youth and people from groups underrepresented in the Service's workforce—primarily people of color and women.

"Youth engagement is incredibly important to the future of the Service," Lamp said. "It's especially important to engage with those from underrepresented groups—and I think we've done a pretty good job of doing that."

Because of its highly diverse student body, one of the schools the team is focusing efforts on is Florida International University (FIU). The Service lists FIU among the top 20 colleges and universities in America in terms of its diversity. "FIU is right here in our backyard," Lamp said. "We're keen on working with them and have developed a good relationship."

Proof positive of that relationship is the agreement the Service and FIU entered into under the university's Tropical Conservation Internship Program. The Service gets a number of interns every semester, and the university pays those interns a stipend to work for the Service—under the direction of mentors—on specific projects. At the end of the semester, the students present their findings to both the university and the Service. The Fernandez Pave the Way Foundation supports the program.

Chelsy Obrer interned with the Service in the fall semester of her senior year at FIU in 2017. At FIU, she majored in biological sciences and graduated in April 2018. Obrer is now a first-year veterinary student at the University of Missouri, pursuing her doctor of veterinary medicine degree.

During her internship with the Service, Obrer researched health issues plaguing the endangered Florida grasshopper sparrow and the breeding programs associated with the species.

"This internship helped me expand the types of research experiences I'd already had," Obrer said. "It also helped me learn more about various avian species, including the Florida grasshopper sparrow, and learn about the common diseases that can affect them. This was very valuable to me as a future veterinarian."

Obrer added that she'd definitely recommend an internship like this to other students. "I feel that having such experience is essential," she said. "I gained a true appreciation for wildlife conservation and conservation research. Doing research that had such a huge impact in real-time was rewarding. I hope to remain an advocate for wildlife into my veterinary career."

Meyer said he hoped the outreach program would produce such positive experiences. "Even if these young people don't end up working for us, they can still be part of that voice in the community that knows what we do and be advocates for the U.S. Fish and Wildlife Service and our conservation initiatives," he said.

So far, about a dozen students have served as volunteers or interns with the Service thanks to this outreach effort. Projects they've done include work that benefits listed and at-risk species such as Florida panthers, rim rock crowned snakes, Miami cave crayfish, Florida bristle ferns and Florida bonneted bats.

Meyer stressed that these young people are being given meaningful assignments. "In addition to working on species, we've trained them on stuff like hydrological modeling and analyzing climate change/sea level rise data. Fortunately, we have staff who are eager to work with these students, because they see them as the next generation of conservation leaders and potential Service biologists."

Biologists Sandra Sneckenberger, John Tupy, Emily Bauer and Layne Bolen are among the staff serving as mentors.

"I thought fresh eyes would be helpful," said Sneckenberger, when asked why she volunteered to be a mentor. "I also thought it would be good for students to get exposed to some of the real-world issues we're facing."

Fresh sets of eyes from underrepresented groups are exactly what the Service is looking for. The Service is hoping to shift the overall demographics of its workforce, with help from the office's Diversity Outreach Program and similar programs.

Roxanna Hinzman, the office's field supervisor, is strongly behind the need for a change.

"The commitment to workforce diversity and inclusion is a core value of the South Florida Ecological Services Office. It's imperative that the Service build an adequate pool of diverse managers, supervisors and employees who are ready to be the next generation of conservation leaders," she said. "Kudos to our Diversity Outreach Team, mentors and the folks representing us at job fairs for working to position us to do that." □

KEN WARREN, External Affairs, Southeast Region

CONNECTING LATINOS TO NATURAL RESOURCE CONSERVATION

Few experiences can rival spending a summer working on a national wildlife refuge. The Service and the Hispanic Access Foundation (HAF) are providing that experience through a highly competitive application process. Last summer, college students participated in 12-week internships to help connect them to work in conservation. The interns were introduced to careers in natural resources at seven wildlife refuges and participated in training that included real-world public education, interpretation, communications, conservation and wildlife rehabilitation.

Ingrid Chavez, 23

Refuge: Silvio O. Conte National Fish and Wildlife Refuge

Interests: Hiking, traveling, Bay Area sports, animals, Latin American news

Dream Job: Working in conservation

"We take for granted all that our natural environment does for us. We need to protect our natural resources for future generations, especially for communities that are disproportionately affected by environmental injustices...The HAF internship has taught me to be flexible and open to new experiences. I have worked on a variety of projects from environmental education to water chestnut picking to working with endangered Puritan tiger beetles."

Kelly Vera, 22

Refuge: Lenape National Wildlife Refuge Complex

Interests: Reading, writing, hiking, thrifting

Dream Job: A writer for National Geographic

"If there is one thing I love to quote it's 'If you think the economy is more important than the environment, try holding your breath while you count your money.' The earth, and its endless giving of supplies, is what gives us life everyday...No matter how tired I am or how over-whelmed I may feel from the work, I never quit because this is my passion. It is much greater than myself."

Cindy Garcia, 22

Refuge: Rhode Island National Wildlife Refuge Complex

Interests: Environmental humanities, especially political geography and indigenous ecological knowledge

Dream Job: Professor of non-Western environmental history

"It's about fostering profound experiences with nature on a societal level. I believe that they make a difference in our environmental ethics and stewardship, which are critical in this day and age. As an environmental educator, I do my best to have kids explore their local environment through a variety of sensory activities. This approach can help minimize the fear of dirt, the disgust of insects and the rejection of unappealing objects....The HAF internship has taught me the importance of building relationships in order to accomplish ' a common goal.

Oscar Hernandez, 18

Refuge: Minnesota Valley National Wildlife Refuge

Interests: Wildlife and family

Dream Job: Urban outreach specialist

"Being in nature is a great place to just be in and explore. Nature is beautiful and I want other people to enjoy it for a long time. The HAF internship reinforced my belief that the work that the U.S. Fish and Wildlife Service does is important and that conservation is a widespread issue; it impacts the quality of everyone living on this earth."

Gabriel Jimenez, 31

Refuge: Shiawassee National Wildlife Refuge

Interests: Community service, mentoring youth, fishing, hunting, any outdoor-related activity

Dream Job: U.S. Fish and Wildlife Service Law Enforcement Officer

"It is bigger than who I am...I do this for my children's children and do it for their best interest. We must all decide what is best for the environment and continue to keep protecting our natural resources...The HAF internship has taught me additional knowledge of the many different career paths within the FWS and [helped] me network with many FWS professionals.

Stephanie Melara, 22

Refuge: Stewart B. McKinney National Wildlife Refuge

Interests: Animation, marine biology, wood-working

Dream Job: Researcher studying deep sea hydrothermal vents

"As an adult, it is my responsibility to care of the place I call home and to make sure I am leaving a suitable, beautiful environment for all who will come after me...The HAF internship taught me that everything you get out of a job, a hobby or a passion is highly dependent on what you put in. This means that anyone and everyone can make a difference, if they are willing to put in the effort."

Jorge Abraham Lopez Trejo, 26

Refuge: Patuxent Research Refuge

Interests: Environmental education, environmental justice, Latino empowerment, urban planning, sustainable development.
I love plants and history, too.

Dream Job: Working with communities to develop green sustainable spaces that fulfills the community needs.

"I want to make sure that future generations have a planet to enjoy, clean air to breathe, fresh water to drink, wildlife to be amazed and nature to be inspired. Environmental conservation [and] education are our biggest allies in this battle for our planet...The HAF internship has taught me to never give up!...Speak your truth, tell your story, connect with people and listen. It only takes one action, little or big, to inspire a change. Be the change, be the answer, be the solution."

Gabrielle Perez, 19

Refuge: John Heinz National Wildlife Refuge

Interests: Environmental policy, conservation, environmental education, women's empowerment

Dream Job: Being the head of the EPA!

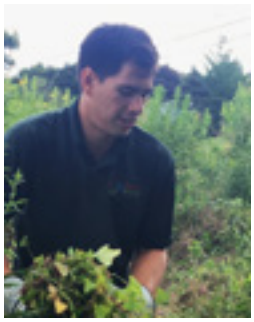
"I know that without a healthy natural environment, every single living thing is at risk of having seriously damaging health issues. Our well-being depends on the well-being of the planet more than many people realize and I just want to help people become more aware of not only their connection to, but their dependence on, nature!...The HAF internship taught me that it is important to help people love and appreciate nature before hitting them with the hard and scary facts about what's going on with the planet."

Daniel Correa, 24

Refuge: Lenape National Wildlife Refuge Complex

Interests: Hiking, traveling and exploring new places domestically and abroad, learning about international news and developments

Dream Job: Work as a state or federal official that focuses on environmental restoration and mapping



"I believe that protecting natural resources is connected with the well-being of communities. We can ensure that communities throughout our country have good living conditions and are able to enjoy the outdoors by protecting our natural resources and promoting good sustainable ideas...The HAF Internship has taught me about the importance of becoming part of the community you would like to support and connect. Putting time and effort into that community carries a lot of importance and outreach is key to connecting with that community."

IN IT FOR LIFE

Georgia youth excels at birding competition.

By MARK DAVIS

MARK DAVIS/USFWS

Credit Ewan Pritchard's older brother with getting him hooked on bird watching. The kid tagged after him so long that...

No, wait; it was earlier than that. Ewan recalls younger days, looking out the back door at his home a few miles east of Atlanta, where a suet-and-seed feeder drew birds to the deck. Another feeder attracted hummingbirds; they swarmed with a vibrant energy that mesmerized the toddler.

Or maybe it was even before that? When he was just a baby, a bundle of young humanity wrapped tight in his parents' arms as they walked the woods?

"I've been [a birder], I guess, forever," he said.

For Ewan, "forever" is 15 years. A high school sophomore, Ewan is among a growing number of enthusiasts who hunt birds with binoculars.

He's good at it, too. Ewan and four friends earlier this year took first place in the annual Georgia Youth Birding Competition. The quintet went on a bird-watching romp that began at the coast and wound up, 200 miles and 24 hours later, at a state-owned wildlife tract in east Georgia.

For Ewan, the first-place finish underscores a simple fact. "I like this," he said. "I don't think I'll ever give up birding."

Young Mr. Pritchard has embraced a hobby millions enjoy, said Dottie Head, communications director of the Atlanta Audubon Society. The organization, an independent chapter of the National Audubon Society, teaches advanced birding. In recent years, she said, the ››

This summer, Ewan Pritchard and his older brother took their birding skills to Ecuador, where they spent a month.

chapter has responded to public demand and now offers two courses instead of one.

"It's growing in popularity," said Head. The hobby, she said, appeals to a wide range of enthusiasts, from people who hike in national wildlife refuges to folks who gaze out their kitchen windows.

National figures underscore the hobby's appeal. A 2016 report from the Service estimated that more than 45 million people are bird watchers.

The Service knows that birders are an important audience and works hard to provide birders opportunities.

As of December 2013, 1,026 species are protected under the Migratory Bird Treaty Act, and the Service takes the lead in ensuring their conservation.

More than 700 species of birds spend time on national wildlife refuges. To make sure everyone, not just birders like Ewan, can enjoy our feathered friends, refuges regularly offer tours and classes, and provide birding lists and sometimes equipment such as binoculars. You can also attend birding festivals at refuges.

And one of the easiest ways that anyone can support bird habitat conservation is by buying Federal Duck Stamps, which the Service annually produces. Nearly all—98 percent—of the purchase price goes directly to help acquire and protect wetland habitat, and purchase conservation easements for the National Wildlife Refuge System. Since 1934, more than 6 million acres have been acquired using Federal Duck Stamp revenues.

'Pretty Cool'

Ewan is a member of the Wood Thrushers, a team comprising himself, two classmates from his school and a couple of other enthusiasts he met through birding. The team takes its name from the songbird found across North America that's a close relation to the robin.

COURTESY OF EWAN PRITCHARD

Ewan Pritchard's 2018 Youth Birding Competition team at Gould's Inlet on St. Simon's Island.

The Wood Thrushers, made up of mentor Charlie Muise, Knox Evert, Nick Christian, Philip Black, Allan Muise and Ewan, and others in Georgia's annual birding competition began birding at 5 p.m. April 27 and concluded at 5 p.m. the next day.

Ewan's team began at the coast, binoculars and field guides at hand. The birders stayed up late, rose early the next day, April 28, and headed inland. They stopped at the Altamaha Wildlife Management Area, as well as Piedmont National Wildlife Refuge.

At each stop, they added more birds to their list. They wound up at the Charlie Elliott Wildlife Center in Mansfield, where 27 teams turned in their totals. When the counting was done, the Wood Thrushers' 161 species took first place.

It was, said Ewan, a team effort. He and his friends had been practicing for a year or more. When the clock started ticking, they started watching.

His favorite bird? Ewan paused. "An osprey," he said, naming the coastal raptor noted for creating immense nests. "I think they look really cool." He's partial to Carolina wrens and bluebirds, too.

Also up there: the Philadelphia vireo, a small songbird that breeds primarily in Canada. Its migratory pattern encompasses part of Georgia. Ewan identified one this year. He called it a "lifer"—a bird he'd never seen before.

"That was pretty cool."

Just as cool: Getting into the woods, alone or with others, and listening for a chirp, a whistle, a shrill call. For a birder, those sounds are a challenge.

When he's outside, said Ewan, "I can hear the birds. I can see them in the trees."

Now, said Ewan, he and the other Wood Thrush guys are looking toward the forests of north Georgia, 100 miles or so from Atlanta's asphalt tangle. They're thinking about scouting out the good birding areas in the mountains.

It's not too soon to start thinking about the next birding competition.

"It's about finding out where the birds are," said Ewan. "That's what I like." □

MARK DAVIS, External Affairs, Southeast Region

CONSERVING LAND & CULTURE

Congress inspires young Native Americans to lead, continue to embrace their traditional values.

By MELISSA CASTIANO

The 2018 Native Youth Community Adaptation and Leadership Congress.

At the beginning of July, age Native American high schoolers from across the country gathered to consider, "How can we support all generations to engage with the land while honoring and respecting indigenous and traditional ecological knowledge and the environment?"

These young people were taking part in the Native Youth Community Adaptation and Leadership Congress at the Service's National Conservation Training Center in Shepherdstown, West Virginia.

While trying to answer that big question, students led the congress and focused on environmental challenges in their communities. The students created themes based on their initial answers to the big question. These themes emphasized the importance of language, elders, political involvement, traditional values, cultural preservation and much more. ››

ALEJANDRO MORALES/USFWS

As they worked on a project to present at the end of the week of their selected theme, the students listened to and learned from inspirational Native American speakers, participated in habitat restoration service projects, environmental workshops, an interactive scavenger hunt, career fair and one-on-one interactions. Each activity fostered opportunities for students to share their thoughts and unique traditional knowledge on the importance of conservation to their way of life, environmentally and culturally.

As Kehaulani "Kai" Smith, a native from Hawaii, said: Conservation means "conserving the land to make sure that it is healthy and at its natural form. But it's also…us conserving our culture, because our culture is from the land."

The goal of the congress is to help aspiring native youth leaders interested in learning leadership and adaptation skills to address environmental challenges facing their tribes and communities.

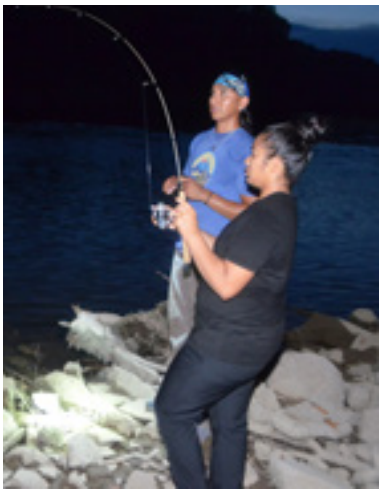
Landon Laffin, a member of the Turtle Clan of the Mohawk Tribe, reminded his fellow students, "As the youth in the next generation, it is our responsibility to preserve all of that for our kids and their kids to come."

For many congress participants, environmental responsibility, conservation legacy and adaptive resilience are well-integrated within their traditional practices and cultural values.

When describing her thoughts on native leadership, Morgan Ulu, a native from American Samoa, said, "[It's] how we, as servants of the community, can develop a voice to conserve our natural resources while keeping our roots grounded."

Historically underserved, the Native American demographic has often viewed federal agencies negatively. As federal agencies work to rebuild trust, the congress fosters a positive exposure to representatives from the Departments of the Interior, Agriculture and Defense. Community resilience and native youth engagement are important components of Secretary of the Interior Ryan Zinke's priority of supporting tribal sovereignty.

To assist federal employees to better work with tribes and Native American youth, this year featured a pre-congress training for federal employees. Participants learned how to implement and apply best practices in cultural competency in the field, increase social awareness ››



ALEJANDRO MORALES/USFWS

Tribal youth learn for the first time to fish at night.

in identifying generational differences and understand Native American communication patterns—skills needed in today's diverse workforce.

By the end of the congress, said Rachael Novak, Bureau of Indian Affairs (BIA) Resilience Coordinator, "I heard one student say they've learned that the government is working to help native communities."

Efforts to keep native youth engaged and interested in being future leaders don't end with the congress. But for now, participants serve as informed voices, building environmental change awareness and incorporating adaptive resilience strategies within native communities.

The congress gave many of the students a better understanding of environmental change and how to integrate adaptive solutions to those changes within their communities. Future leaders, such as Ulu and other congress participants, will work to ensure a healthy, natural environment for their communities, many of which are heavily dependent on wildlife, fish and plant populations their traditional practices, subsistence lifestyle and the foundation of their economy.

By connecting future Native American leaders to agency managers while the leaders are still in high school, the congress provides a network that will benefit future leaders and their communities. The Native Youth Community Adaptation Leadership Congress supports the Service and other agencies by working to include Native Americans in conservation stewardship, restoring trust with our Native American neighbors, reminding youth of the strength of tribal sovereignty and teaching techniques on how to remain adaptive for the next 100 years.

BIA's Novak said that after the congress, "Students tell me how they will inform their tribal communities and leaders about environmental change, [and share] new ideas to get friends engaged with the outdoors." ››

ALEJANDRO MORALES/USFWS

ALEJANDRO MORALES/USFWS

(Top) Delphina Lee (Navajo) speaks in front of her group and a large image of multiple tribal flags. (Bottom) Sabrina de Jong (Hoopa) and Lance Tubinaghtewa (Hopi) discuss career and academic options.

ALEJANDRO MORALES/USFWS

Azreale Hinckley (Diné) and Darriyo Yazzie (Diné) stand in the Potomac River in front of a kayak smiling after spending time on the river.

Participant Jaden Nevayaktewa is ready for the challenge. After the congress, he posted to his social media, "As I lie here staring at the ceiling. I think of the most amazing human beings. This past week went by with nothing but love and friendship. All talking about our past and hardships. Thinking of ways to conserve the land and make the earth green again. Now that we all know what we have earned. It's the time that we realize it has begun. So let's show and prove what we have learned ." □

MELISSA CASTIANO, Coordinator of Native Youth Community Adaptation and Leadership Congress, National Conservation Training Center

Special thanks to Alejandro Morales and Kaitlyn Moone

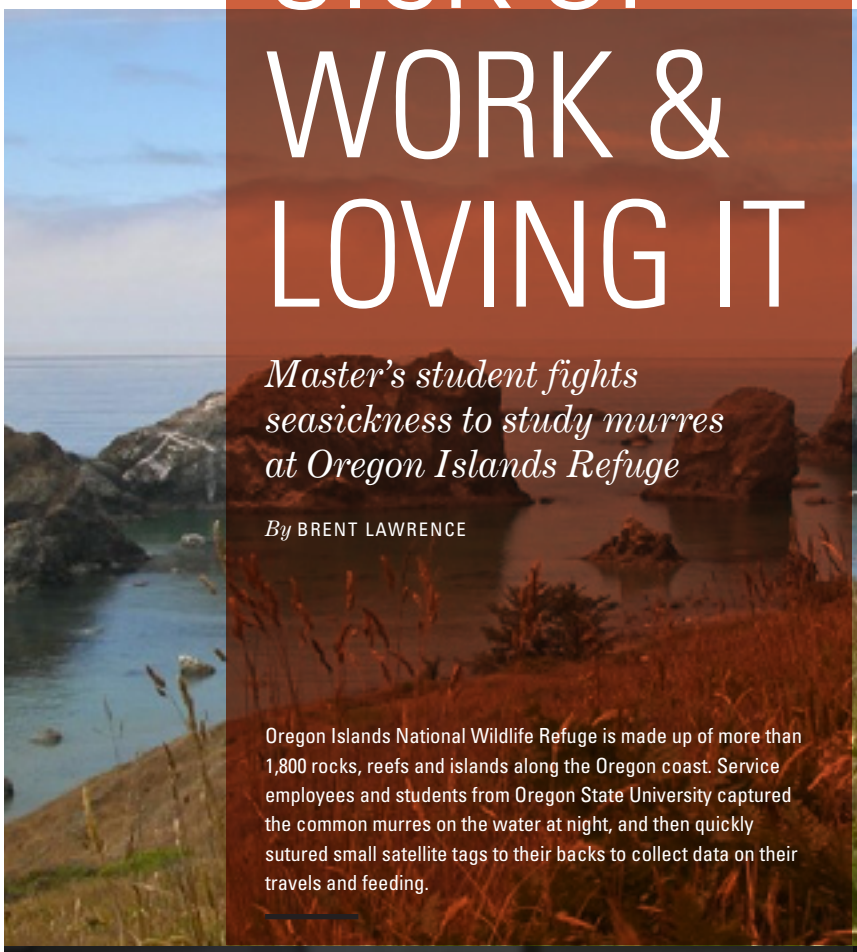
Partners

The Native Youth Community Adaptation and Leadership Congress is possible thanks to our following partners, Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, Environmental Protection Agency, Federal Emergency Management Administration, National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration, National Park Service, South Central Climate Science Center, U.S. Department of Agriculture, U.S. Forest Service and U.S. Geological Survey, New Mexico Wildlife Federation and Ancestral Lands: Conservation Legacy's Southwest Conservation Corps.

SICK OF WORK & LOVING IT

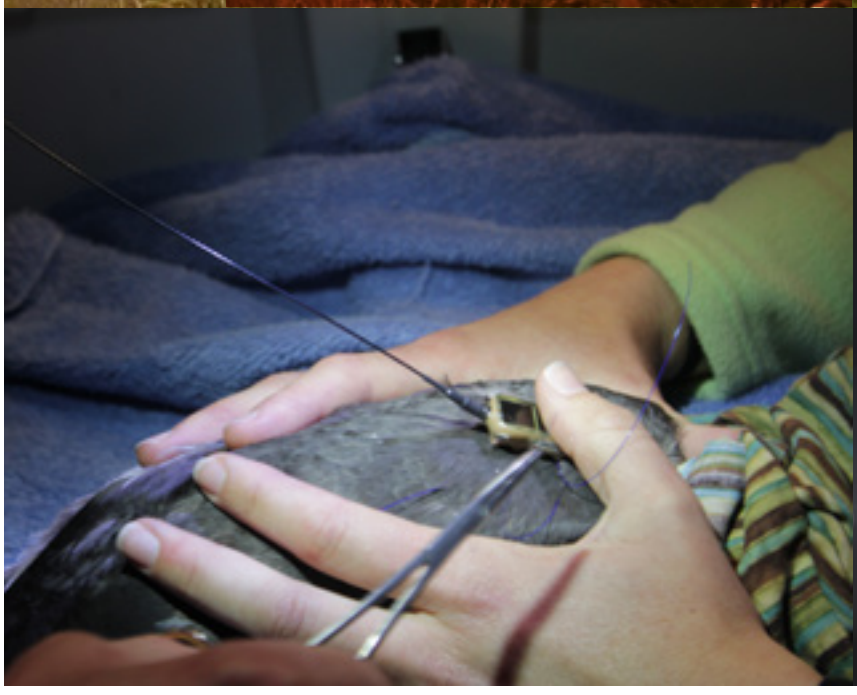
Master's student fights seasickness to study murres at Oregon Islands Refuge

By BRENT LAWRENCE



Oregon Islands National Wildlife Refuge is made up of more than 1,800 rocks, reefs and islands along the Oregon coast. Service employees and students from Oregon State University captured the common murres on the water at night, and then quickly sutured small satellite tags to their backs to collect data on their travels and feeding.

ROY W. LOWE/USFWS



COURTESY OF STEPHANIE LOREDO

Some people's stomachs turn at the thought of another day on the job. Stephanie Loredo is one of those people.

Loredo just completed her master's degree from the Fisheries and Wildlife Department at Oregon State University. Her master's thesis on common murres required her to capture and tag these small, diving seabirds off Yaquina Head on the Oregon Coast during the last few summers. How do you capture and tag these birds?

At night. On the Pacific Ocean. In a small boat....And, for Loredo, between bouts of wave-induced vomiting.

"I always get seasick but have to do it for my thesis," Loredo said after her final round of captures in August 2017. "My adviser told me I don't have to go every time, but I want to go. Every time I think it isn't going to be as bad, but it's been the worst the last two times. I always want to make sure everyone else on the boat knows what they're doing before I get completely sick. I did get through 2½ birds this time before I lost it."

Loredo's thesis was on "Three-Dimensional Habitat-Use of Common Murres Off the Northern California Current." It focused on habitat use and diving activity of non-breeding murres under various ocean conditions.

The birds she studied at Yaquina Head were nesting on offshore rocks that are part of Oregon Islands National Wildlife Refuge. There are 1,854 rocks, reefs and islands along the Oregon coast that comprise the refuge, which was established on May 6, 1935, as a breeding ground for seabirds and marine mammals.

Most of Oregon's estimated 1.2 million nesting seabirds use Oregon Islands Refuge as a place to raise their young, and Oregon's seals and sea lions use the islands as a place to haul out and rest or to give birth to their pups.

Unfortunately, many of Oregon's seabirds populations are not doing so well. The common murre is experiencing low reproduction at Yaquina Head, which has the largest murre colony on the West Coast. Loredo's research at this colony will help the Service better understand what is causing the decline in reproduction and what can be done to remedy the situation. In addition, the study will help biologists and the Service understand multiple variables that influence seabird populations and marine ecosystem conditions.

"We have worked with Oregon State University on several seabird projects. They are such an important resource. We want to be involved and figure out where the birds are going and what they're eating. This is all good information," said Shawn Stephensen, wildlife biologist for the Oregon Coast National Wildlife Refuge Complex. "We have been using our boats, and Scott Neuman, our law enforcement officer, and I have been boat captains."

What Loredo found in the surveys is troubling. About 50,000 to 60,000 common murres currently nest at Yaquina Head annually. In 2010 and 2011, there were almost 90,000 murres breeding there. For the past three years, the murres have had "reproductive failure," which means that zero chicks survived to fledging in the survey areas.

A single year of reproductive failure would be a blip on the radar for this relatively long-lived bird (15 to 20 years), but three consecutive years presents a big problem. Many of the tagged birds have left the colony and headed north to the Columbia River and to Washington's Salish Sea, which is north of the Olympic Peninsula.

Loredo and the Service looked for the answer to "why?" Part of the problem appears to be the effectiveness of bald eagles and gulls at snatching young and eggs. However, there is a much more significant problem—a lack of food in the nearby ocean.

"Research vessels that survey fish are not seeing good food for birds off the Oregon Coast," Loredo said. "Some have described it as a desert out there because there's not enough food for them. That explains why the dispersal is happening."

Part of Loredo's work involves taking measurements (aka morphometrics), banding the bird's leg and suturing a tiny satellite tag to the bird's back. From there they can track the bird's movements, as well as get dive and feeding information.

"Those tags are pretty small. At first we were using 15-gram tags, but now they're only 5 grams," Loredo said. "Technology has been advancing fast with tags. We wanted them to be able to collect data for a longer time, so now they're solar charged and can collect data for four months."

After collecting the data, Loredo analyzed it for her thesis.

Finishing her thesis and master's degree was a less queasy, landlocked affair, but it didn't provide the same level of excitement for Loredo, who came to the United States from Peru when she was age 11.

"I love birds in general, and I hope to continue in avian conservation," Loredo said. "I am currently looking for Ph.D. opportunities with fieldwork in Peru, but I plan on taking a year off academia first to do some fieldwork, outreach and/or education in avian conservation."

If she attacks her future with the same passion as she does tagging birds on the cold, foggy Pacific Ocean, she'll have a lot of success.

"She's such a trooper," Stephensen said. "On the last trip, she would feel sick, throw up and get back to work. I don't know how she did it." □

BRENT LAWRENCE , External Affairs, Pacific Region

good eating

Deepwater Horizon settlement project on North Breton Island will provide a better menu for shorebirds.

By NADINE LEAVITT SIAK

Piping plovers, like this one, forage for food on North Breton Island in the winter.

JIM HUDGINS/USFWS

When many people hear the word *Louisiana*, images of delicious Cajun and Creole food—beignets, Po'boys, gumbo, jambalaya and more—likely spring to mind.

"Barrier islands" probably won't pop into most people's heads. Yet these islands are vitally important to Louisiana because they protect communities from the impact of storms by acting like speed bumps, absorbing energy from wind and waves, slowing them down. In addition, they provide essential habitat for birds and other wildlife.

North Breton Island, part of the Breton National Wildlife Refuge, is one such speed bump. But this barrier island, a 45-minute boat ride from Venice, Louisiana, has slowly eroded over thousands of years due to natural conditions, such as severe storms. The island is now only a tiny fraction of its size hundreds of years ago. Its lost shoreline has translated into lost habitat for numerous federally protected birds.

Biologist Robin Donohue takes samples on the shoreline of North Breton Island, Louisiana.

GREG THOMPSON/USFWS

North Breton Island has also suffered from man-made disasters, such as the 2010 Deepwater Horizon oil spill. Now, the company responsible for that spill is funding the island's restoration.

After the oil spill, federal and state agencies came together to form the Deepwater Horizon Natural Resource Damage Assessment Trustee Council. The council studied the effects of the oil spill and is now restoring the Gulf of Mexico to the condition it would have been in if the spill had not happened. The council is using $72 million from the settlement with BP to increase North Breton Island by hundreds of acres.

The project will pump sand from a local underwater source, called a "borrow site," and use it to expand the island. The additional acreage will provide nesting habitat for threatened and endangered birds such as the brown pelican and least tern. It will also benefit red knots and piping plovers that forage for food there in the winter.

Beach Buffet

"We don't expect the project will directly harm the red knot and plovers, but it will impact their food source," said Robin Donohue, a biologist for the Service. He recently joined other Service and U.S Geologic Survey (USGS) biologists in assessing the pre-restoration abundance and species composition of the worms, crustaceans and other invertebrates that call North Breton Island's shoreline home. "These small animals are incredibly important in that they're the bottom of that beach-foraging food chain," Donohue said. "For virtually all of your shorebirds—that's what they're looking for."

So Donohue and his colleagues went looking for invertebrates on North Breton Island, too. Using a soil sampling tube, they took samples of the shoreline from the surface down to 5 cm deep (the maximum depth at which red knots and piping plovers are thought to search for food). "We had to do it as fast as possible to get the invertebrates before they run away," he said with a laugh. "Shorebirds looking for lunch are much stealthier and quieter than a bunch of biologists."

A USGS expert is examining the samples to determine the shoreline's invertebrate population now, before construction starts in 2019. After approximately 8.2 million cubic yards of sand, silt and clay dredged from the nearby borrow site is put into place and the North Breton Island shoreline is reconfigured, biologists will take samples again in order to compare the post-construction invertebrate population with the pre-project baseline.

With those hungry shorebirds and other species in mind, the biologists are aiming to have at least 70 percent of the pre-project invertebrate biomass re-established within two years of the project's completion. That would be a normal rate of return, and they'll be looking for it to ensure the restoration effort is on track.

"Through our sampling, we will have an idea of the beach critter community," said Chris Pease, another Service biologist who was involved. "And after we add new sand to the island as part of our restoration efforts," he said, "we will know if the birds will have as good of a buffet as before." □

NADINE LEAVITT SIAK, External Affairs, Southeast Region

Davis helps install a gauge at Lake Zahl National Wildlife Refuge in North Dakota.

USFWS

CONFESSIONS OF A 'REFUGE RAT'

Twenty years ago, John Davis answered an ad for a refuge volunteer. He was hooked.

By MATT TROTT

The National Wildlife Refuge System includes more than 560 refuges, 38 wetland management districts (WMD) and other protected areas. Volunteer John Davis, a self-described "Refuge Rat," has visited half.

"I have visited 294 national wildlife refuges or wetland management districts, in every region of the FWS except for the Pacific Islands, Puerto Rico and the Virgin Islands," he said. And he has put in lots of work at the more than 20 refuges.

He said his 3,500 or so volunteer hours may not compare to some full-time volunteers, but don't tell that to the staff where he has given his time.

"Dr. Davis has as much passion for the National Wildlife Refuge System as any one of its employees," said Scott A. Williams, wetland district manager and federal wildlife officer at Crosby Wetland Management District in North Dakota, one of the places Davis volunteered this past summer.

"John cares deeply for the National Wildlife Refuge System and Fort Niobrara NWR is fortunate to have been one of the refuges that benefited from his volunteer service," said Kathy McPeak, biologist at Fort Niobrara National Wildlife Refuge.

Davis grew up and still lives in upstate New York. He visited his first refuge when he was 17. "My brother-in-law took me there—Great Swamp [National Wildlife Refuge] in New Jersey—and I have vivid memories of the boardwalks through the swamps."

But what changed the college teacher into a lifelong volunteer and "Refuge Rat"?

"In 1998, I answered an Internet advertisement looking for a volunteer at Fort Niobrara [National Wildlife Refuge] for a special summer project: a social carrying capacity survey of visitors floating the Niobrara River through the Fort Niobrara National Wildlife Refuge," he remembered.

He got the gig, and after spending the summer designing and working on the survey at the refuge in Nebraska, he and his supervisor at the time, Mark Lindvall, reported the results at a Wilderness Science Conference.

"This study and his recommendations… were a great help in assuring a wilderness experience to our visitors," remembered Lindvall, a retired assistant refuge manager.

It had a big effect on Davis, too.

"That summer's experience turned me on to the wonders and the diversity of the NWR System, and I have spent the last 20 years volunteering and occasionally working as a contractor for the Service on projects all across the U.S."

Davis' working career teaching physics, math, GIS, ecology, environmental studies and conservation biology in colleges and universities provided him with knowledge that refuges loved to mine, and he gave that knowledge away freely.

At Ruby Lake National Wildlife Refuge in Nevada, Davis has worked, as recently as this summer, to help calculate visitor use on the refuge and set up invasive species inventory and monitoring. He "enthusiastically shares his knowledge of GIS and related technology to obtain quantifiable results," Refuge Manager Pete Schmidt said.

Data analysis and management, involving his students in the development of a wilderness management plan, easement mapping and numerous GIS projects are just a few of the jobs that took advantage of his career skills.

After his first stint at Fort Niobara, McPeak said, Davis "graciously agreed to help me with additional data analyses/ modeling in development of our controversial River Recreation Management Plan and various biological projects over the years. "

Of course, other jobs require less specialized knowledge: hand-pulling invasive plants, surveys and counts, sign replacement and fence repair, staffing the visitor center desk, and cleaning backcountry toilets.

As you might imagine, Davis has a hard time picking favorites, but some of his memorable volunteer experiences include raptor surveys at Red Rock Lakes National Wildlife Refuge in Montana or wrestling calves for branding during the annual bison roundup at Fort Niobrara.

"Every refuge, from the smallest easement refuge to the remote wild refuges of Alaska, has something amazing to offer the casual visitor or the volunteer," Davis said.

He saw one of those amazing somethings when he was volunteering at Sheldon National Wildlife Refuge in Nevada. "I was walking on a trail in an old stream channel, with eroded volcanic rock walls above me on both sides, and I came around a bend to see a golden eagle perched on a rock ledge just about three feet higher than my head," Davis recalled. "He took off and flew right past me at eye level, practically within arm's reach."

Lostwood National Wildlife Refuge in North Dakota also amazes him and is one of his favorite refuges. He calls it "a particularly beautiful example of the Prairie Pothole Region."

"In the spring," he said, "when everything is green and lush, the wetlands are like blue diamonds in an emerald carpet. Everyone thinks of prairie as flat, but as a matter of fact, the Prairie Pothole Region is all folds, contours, swells and swales. The light in the evening or morning plays across the landscape emphasizing the shadows and highlighting every topographic feature. It's breathtaking, especially if you take the time to climb to the viewing platform on the old fire tower, which is still open to the public."

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"It has been a privilege to work alongside Dr. Davis, and I hope he continues to volunteer for many, many years to come," says Scott A. Williams, wetland district manager and federal wildlife officer at Crosby Wetland Management District in North Dakota, one of the places Davis volunteered this past summer.

"Every refuge has some interesting feature, some scenic wonder, a cultural or historical treasure, a wildlife adventure, or a chance for quiet contemplation in the beauty and tranquility of nature," he said. "Every refuge or Waterfowl Production Area is a national treasure."

He's not done giving either. "I am very proud of having contributed to the operation of the Refuge System, and I look forward to many more years of volunteering."

This will make Crosby's Williams happy.

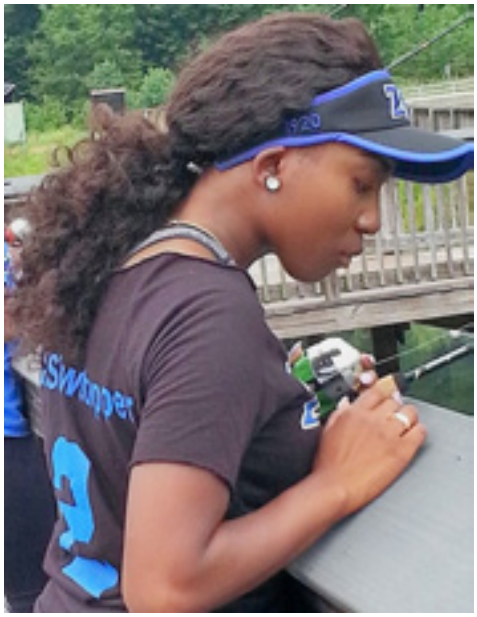
"It has been a privilege to work alongside Dr. Davis," he said, "and I hope he continues to volunteer for many, many years to come."□

MATT TROTT, External Affairs, Headquarters

Doves in the Wild

Sierra Snyder and her Zeta Sisters Take a Breath of Fresh Air

By SIERRA SNYDER



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Sierra Snyder and her Zeta Phi Beta Sorority sisters didn't catch any fish on their first fishing trip because "[the fish] were playing us like a game."

"We keep moving forward, opening new doors, and doing new things, because we're curious and curiosity keeps leading us down new paths."

—Walt Disney

"Sooo we are going fishing? OK... that's different." That was one of the messages I received from my Zeta Phi Beta Sorority sisters Kelsey Burks and Cynthia Ofosu after I invited them to go to Patuxent Research Refuge in Maryland with me.

We are all recent graduates of Morgan State University in Baltimore, and fishing has never been on our to-do list. Just going to a national wildlife refuge did not seem like a priority.

But my time with the Service sparked my curiosity about nature and wildlife conservation, so this new experience would be perfect.

We were definitely trying something "different," as one of my sisters had said. We usually don't do such things as hiking and fishing. If we are outside together for extended periods of time, we are most likely at a cookout or some sort of outdoor community service. We have never really spent time outside solely to enjoy nature. So this was outside the box for all of us.

Despite their slight hesitation, they agreed to meet me on a Saturday morning for a day of nature-filled fun!

We started our day by fishing at Cache Lake. After a brief tutorial and coming to terms with touching live slimy worms, we cast our fishing rods in hopes of catching a fish. After the first few failed attempts, we finally got it down and were casting pretty far.

It turns out, though, that the fish in Cache Lake are intelligent! They were playing us like a game. They knew how to eat the bait off the hooks without getting caught. They would swim away quickly and we would pull up hooks absent of bait and fish. Even after switching up our strategy and using smaller hooks for the smaller fish, they still outsmarted us. Time after time they got free meals off our hooks. We learned that much of fishing is a waiting game.

While we stood by hoping to pull up a fish, we couldn't help but notice the feeling of tranquility that came with being at the lake. The fresh air, the breeze, the stillness of the water with the occasional ripples from the life that lies beneath the surface, it was beautifully serene.

It felt like a break from the busy and stressful life of a college graduate; it was a breath of fresh air—literally. So much so that we want to organize a trip to the refuge for other sorority sisters; it's the perfect getaway. Teaching them to fish would be an interesting and amusing bonding activity.

In the end, we didn't catch any fish but still gained a lot from the experience. We learned something new and are excited to bring our sisters and show them what we learned.

After a quick snack, we headed inside to the visitor center to learn about screech owls. We all agreed that the owl was cute and led an interesting life, but honestly, I have a small fear of birds.

When they fly over me, the hairs on the back of my neck stand straight up and I get chills down my spine. My relationship with birds hasn't been the same since a bird pooped in my hair.

Nevertheless, today was about stepping outside of comfort zones and creating new experiences, so I took a deep breath and went for it. ››

USFWS

Zeta members Cynthia Ofosu, Sierra Snyder and Kelsey Burks with a screech owl and its handler.

At first, I was a little apprehensive to be around a bird, but it actually melted my heart! Its big eyes and calm demeanor were different from any bird I've ever encountered. I was even comfortable enough to snap some close-up pictures.

The final activity of the day was the tram ride that took us on a tour of the refuge. It was so refreshing to just ride through the woods and embrace the nature we so often forget. We can get so preoccupied with the routine of our everyday lives that we forget to sit back and marvel at the natural beauty around us.

More than just enjoying nature and admiring its beauty, though, we must ensure that wild places continue to exist into the future, so that our descendants can have the same connections with nature that we have. That, in turn, will inspire them to continue to conserve nature for more generations to come. Conservation is about doing your part for the environment and setting an example for others.

If we don't do our part in conserving our environment, we will lose it. Everyone needs to contribute and encourage others to do the same. Visiting a wildlife refuge is a start. After our girls trip to the refuge, my sisters and I have gained a greater appreciation for wildlife and the natural habitats around us. We didn't know we would enjoy the activities at the refuge so much or that we would find the stillness of nature so captivating. But now that we do know, we are glad that we took that step outside our box.

"There's something about this place that I find so alluring," Cynthia said. "I want to make this my new spot, whenever I need a break from reality or to clear my mind. This is a gem."

This internship has helped me realize how I have been ignoring this planet's natural beauty. After seven weeks with the Service, my appreciation for the natural habitats around us has grown significantly. Not only are they all around us but they are often easily accessible and free of charge.

After just one visit to a refuge, that initial reluctance we felt about engaging in nature is gone. Visiting the refuge inspired us to encourage others to go as well! The lessons that I have learned here I will carry with me for the rest of my life. □

Sierra Snyder was an intern at the Service in the summer 2018. She is a proud member of the Gamma Chapter of Zeta Phi Beta Sorority, Inc.

MUSEUM OBJECTS COME TO LIFE

This is a series of curiosities of the Service's history from the U.S. Fish and Wildlife Service Museum and Archives. As the first and only curator of the museum, Jeanne M. Harold says the history surrounding the objects in the museum give them life.

Hygrothermographs

In the museum "biz," we use all manner of hygro-thermographs to measure the temperature and relative humidity in our museum storage and display areas. The traditional recording hygrothermograph uses a bundle of human hair that stretches and contracts at a known rate, thus moving a mechanical arm that indicates the level of relative humidity. When I started out as a conservator for the National Park Service, I was sent to Ellis Island to work on objects before the museum opened to the public. I noticed that all the hair bundles were gone, so the machines were not working. The folks there told me the hair bundles were being eaten by rats. I asked if they had some sort of integrated pest management system to remove the rats, and they pointed to a pet cat who lived on the island. I then noticed a bowl of cat food nearby, and said the cat must have grown complacent and was not motivated enough by hunger to catch the rats. I always remember that story and sometimes tell it to folks on tours of our museum. I am glad that at NCTC we have no rats and no need for lazy cats!

Insect Irony

For years I have taught classes for the Department of the Interior on the prevention of damage to museum objects by various forces of nature, such as temperature, relative humidity fluctuations, pests and the like. One of my favorite slides used in these classes is of a page from the National Park Service's guide to the fumigation of objects and areas when they have been infested with starch eating insects such as silverfish and cockroaches. The page was just one of a larger publication on pest damage and how to deal with it. The specific page itself is absolutely decimated by silverfish. Museum curators universally recognize the telltale sign of this damage: irregular losses in the paper from the hungry little livestock eating the paper in a random pattern. They are especially drawn to paper because of yummy sizing and the starch particles in the manufacturing process. Oh, the irony, they ate the very guide that instructs us on how to eradicate them!

FWS Heritage Awards

Many of you may not be aware that the Service has an annual award that is given by the Heritage Committee to the person deemed integral to the preservation of the history and heritage of the Service. This prestigious award is given once a year, and has been in existence since 2002. The list of those who have received the award:

2002 Christopher "Kip" Koss, grandson of Jay N. "Ding" Darling
2003 H. Dale Hall
2004 D.C. Booth Society
2005 Norman Olson
2006 Kent Olson
2007 Jerry & Pat French, Jerry & Judy Grover, Denny & Kathy Holland
2008 John R. "Rick" Lemon
2009 John Juriga
2010 Steve Brimm and Arden Trandahl
2011 Lou Hinds
2012 James W. Kurth
2013 Lynn Greenwalt
2014 Dave Hall
2015 Jeanne M. Harold
2016 Douglas Brinkley
2017 Randi Smith
2018 Steven M. Chase

The latest awardee is our very own Steve Chase. Steve has been the supervisor and overseer of the Fish and Wildlife Service Museum and Archives since its inception in 1997. Steve was recently promoted to be the Deputy Director of NCTC (now, acting Director, p.37). His guidance has always been integral to the course of the Heritage Committee, and, as the award itself signifies, he has made an exceptional contribution to the preservation of our heritage. Congratulations, Steve, for the award and for the promotion!

Retirement, Hurricane Don't Sever Service's Family Ties

CATHERINE PHILLIPS/USFWS

Service crews clear a neighborhood street in Florida.

As soon as possible after Hurricane Michael, Service employees showed up with chainsaws, food and water, and plenty of grit, determined to get the communities back in shape.

Sawyers and heavy equipment teams rolled in from Mississippi, Alabama, Louisiana, Georgia and Florida to areas damaged by the storm. Skid steers, backhoes, chainsaws, gas and diesel tanks, cases of water and meals-ready-to-eat stood at the ready. Not to mention tarps, ladders, generators, lumber, saws and cots.

As with any disaster nationwide, the damaged communities are the places where we work and play, where our children go to school, where our families live.

Retirees are an important part of the Service family, and in the wake of October's Hurricane Michael, Mary Mittiga, Gail Carmody and other retirees were reminded: Family ties do not disappear with retirement.

The first job for the Service first responders was to check on Service employees, retirees and volunteers.

Mittiga, a 2017 retiree who lives in Panama City, Florida, needed help. So a team showed up, "tarped the roof, set up a generator, cleared a monster tree blocking my drive and left a care package," said Mittiga, who now volunteers with the Service "chauffeuring gopher tortoises" and working on a pollinator garden at one of the local Service facilities.

"Those guys are awesome!" she said. "Made my day."

The family safe, more work remained.

Eight days after the category 4 hurricane hit Florida, Service workers began sawing away at the large number of fallen trees in Panama City.

The Service teams workers were among the first rescue workers to visit the city after the storm passed. They knocked on doors, shared a smile and whatever news they had.

"You people are the first people we've seen here since the hurricane," one resident said.

"It's exciting to see someone!" another added.

The encounter was brief; the first responders had a lot to do and soon moved on.

The nearby town of Panama City Beach was largely unscathed with only a few light poles down and roof tiles gone.

That didn't stop Service employees from knocking on Carmody's door. She's a 2010 retiree who lives in Panama City Beach.

"Fish and Wildlife Service electricians from [Warm Springs National Fish Hatchery in Georgia and Bears Bluff National Fish Hatchery in South Carolina] just came to check on me," she emailed, "still family looking out for each other." □

All folks who at one time worked for the Service or were members of a Friends group are automatically members of the nonprofit Association of Retired Fish and Wildlife Service Employees (FWS Retirees Association). They can become active members who stay up-to-date with their former agency and its issues, and connect with former colleagues.

The FWS Retirees Association aims to foster camaraderie among retirees and active employees; recognize and preserve the rich history of the Service and the many contributions of employees; foster the preservation and use of objects and information relating to the Service's unique history; and involve present and past employees in the history and heritage of the Service.

Our members and their families and friends enjoy reminiscing at reunions, traveling, gathering stories, conducting oral history interviews and mentoring.

Find out more about us at our website, <fwsretirees.org>.

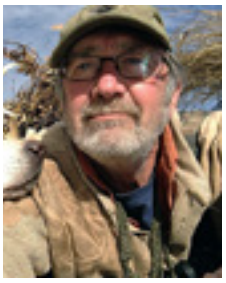
transitions

Midwest Region

After more than 30 years working at national fish hatcheries, **Curt Friez** has retired. He started his career in 1988 at Garrison Dam National Fish Hatchery in North Dakota and was later transferred to Jackson National Fish Hatchery in Wyoming. From there, Curt went to Carson National Fish Hatchery in Washington. Most recently, Curt was the complex manager at Pendills Creek and Sullivan Creek National Fish Hatchery Complex, in the Upper Peninsula of Michigan.

"I have had a great career working for the U.S. Fish and Wildlife Service, and have met and worked with some very fine people," said Curt when asked to reflect back on his career. "When it is all said and done, I hope my efforts made a difference."

Over the years, Curt helped to raise millions of fish used to support species recovery efforts. As a fixture in the national fish hatchery community for more than three decades, Curt's presence will be missed. His colleagues wish him the best in his retirement. □



Iowa Private Lands Coordinator **Doug Helmers**, who retired recently, spent the last decade working for the National Wildlife Refuge System through the Partners for Fish and Wildlife Program, but his roots in conservation go much deeper. Starting back in the spring of 1991, his first "real paying job" was as the North American programs coordinator for Western Hemisphere Shorebird Reserve Network at Manomet Bird Observatory in Manomet, Massachusetts. There, he worked with Joint Ventures and Service staff, as well as state refuge managers and biologists to begin incorporating nongame birds, and specifically shorebirds, into the North American Waterfowl Management Plan. During this time, he authored the Shorebird Management Manual, wrote the first shorebird management plans for two Joint Ventures, and developed and led a series of shorebird management workshops for state and federal land managers.

Looking back over his career, Doug considers his time as wetlands team leader for Natural Resources Conservation Service in northwest Missouri to be one of the most rewarding periods. The team planned, surveyed, designed and developed more than 20,000 acres of Wetland Reserve Program easements on private lands in Northwest Missouri. In addition, they enhanced nearly 3,000 acres of older Wetland Reserve Program easements. The large majority of that restoration vastly expanded the zone of influence around Swan Lake National Wildlife Refuge, Fountain Grove Conservation Area and Pershing State Park in North Central Missouri.

All of those previous experiences prepared Doug for coming to the Service to lead Iowa-based efforts for the Partners for Fish and Wildlife Program. As a state coordinator, part of his role has been to build and maintain partnerships within the agricultural and conservation communities, as well as build trust with private landowners.

Over the past several years nothing may have tested that trust and partnership-building more than the monarch butterfly has. As Doug thought about all the interactions with groups and individuals in our agency's support for the monarch butterfly, a couple of pieces of advice came to mind that were passed on to him and he wanted to share with the rest of us.

"That first piece of advice is to spend a lot more time listening than talking, and when it's time to talk, be succinct and sincere. The second piece of advice is that if we wait until it's perfect, it'll never get done," he said.

Getting out of his comfort zone was key for Doug's involvement in bringing back the monarch butterfly and the success of the efforts to rally the agricultural and conservation communities. Those kinds of opportunities gave him a chance to look at things differently, helped him become more rounded and sometimes, he said, "they're just plain fun!"

Doug noted that, "It has been an honor to work for the Service these past 10 years and I want to thank everyone I have had the opportunity to work or interact with."

While he is retiring from government service, he's not retiring from conservation. He wanted to let everyone know that he'll be staying involved in a different capacity. So, stay tuned! In the meantime, he has these parting words for all of us, "Remember you're never a complete failure when you can be used as a bad example, haha!" □

It's been a while since newly retired **Jim Hudgins**, Michigan private lands coordinator for the Service's Partners for Fish and Wildlife Program (PFW), started working in conservation—41-plus years! He got his start straight out of college with a seven-week stint with the U.S. Forest Service as a Youth Conservation Corps crew leader. Jim "bumped through" eight seasonal jobs in the two years that followed his undergraduate work at Michigan State. That was in the late '70s and par for the course for wildlife graduates at that time.

The tide turned, career-wise, for Jim in 1979 when he headed to Penn State for a master's degree. By 1981, he was hired by the Pennsylvania Cooperative Wildlife Research Unit as a

research technician. For six years he coordinated and conducted field monitoring of wildlife response to a large-scale, long-term habitat manipulation project on a state game land. It was there that he learned a lot more about working with others, critical thinking, clear writing and the value of a good photo to help tell a story.

Jim remembers a couple of accomplishments as particularly rewarding. While at the West Virginia Field Office for Ecological Services from 1987 to 1993, he spent a lot of time playing what he defined as, "a small role on a very big team" that led to the establishment of Canaan Valley National Wildlife Refuge later in 1994. He is forever grateful to his supervisor for recognizing his skills and directing them toward this project over his other duties. He's proud to see the refuge sign in that beautiful valley.

Jim also considers himself lucky over the past 25 years to have hired excellent staff and encouraged them to excel by setting the expectation that they'd do their jobs well—which they have done! He said he always basked in the glow of their on-the-ground accomplishments.

In response to the greatest challenge he's overcome over the course of his career, Jim said, "I hope I have helped to keep process and product in the proper perspective and have added some practical value to our strategic planning discussions."

"Our process has grown exponentially over my career, but completing the process is not the product. I am pleased to have been in PFW, where we still can view our products as on-the-ground habitat improvements that benefit wildlife," Jim continued.

When asked what advice he has for new employees, Jim was clear, "Learn the mission, live the mission, love the mission!"

That mission is "To work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people."

Said Jim, "I hope those first three words—working with others—encapsulate what I have done reasonably well over this career." He defines "others" as agency employees, colleagues outside the agency and landowners. He counts them all as friends and a second family, and he encouraged us to cherish and nurture those relationships from the beginning. When you do, he said, those connections will last through a career.

The next words in the mission—to conserve, protect and enhance—empower us all to take action as public servants, he said, challenging us to act!

The next part of the mission reminds him what we're acting for, for the resource. And lastly, that we are meeting this mission collectively, as One Service, for the public. Jim feels that when we deliver our mission, we will do well.

"It has been my sincere pleasure to work with many of you. I salute you for what you have done and encourage you in the face of all challenges to continue to deliver the mission," Jim said. □

Big Muddy National Fish and Wildlife Refuge Manager **Tom Bell** (seen, circa 1984) got his start in conservation back in 1974 at Mingo National Wildlife Refuge in Missouri as a GS-3 Youth Conservation Corps crew leader. While Tom says that his official duties were to help develop an interpretive and environmental education program for the refuge, he also drove tractors, bush hogs and a D-7 bulldozer, and operated power tools when needed, because Youth Conservation Corps enrollees were not allowed to use them. He thought, "I had died and gone to heaven!"

Over the course of his Service career, Tom also worked at Loess Bluffs National Wildlife Refuge in Missouri, Port Louisa National Wildlife Refuge in Illinois and Iowa, and Litchfield Wetland Management District in Minnesota before rounding out his 41-year career at Big Muddy Refuge in Missouri. He spent a large portion of his career as a commissioned refuge officer.

Thinking back over his career, Tom found his involvement with the recovery efforts after the record flood event of 1993 to be his most rewarding project. Tom said he was privileged to work alongside a small team of outstanding Midwest Region biologists and managers, great professionals from Natural Resources Conservation Service and state agencies—particularly in Iowa and Missouri.

He also credited essential partnerships with various nongovernmental organizations such as The Nature Conservancy, Iowa Natural Heritage Foundation and Izaak Walton League. Their joint efforts resulted in large land protection projects at Port Louisa Refuge, Middle Mississippi River National Wildlife Refuge, Big Muddy Refuge and expansion of Illinois River National Wildlife Refuge Complex. Equally important were the changes in philosophy about big river floodplain management.

Tom's fingerprints are prominent at the newly constructed Big Muddy visitor contact station and office. The facility was constructed through a maintenance action team, a first for our agency, and was a tremendous success due in part to his leadership and oversight.

One of the greatest challenges he worked on and helped the agency address during his tenure was diversifying our workforce.

"We have come a long way, as evidenced by the large and growing number of women in positions of responsibility. As evidenced by the lack of racial diversity, we have at least as far and probably further to go in that area. The culture and agency have changed a great deal—and needs to continue changing," Tom said.

His parting advice for new employees could really extend to

the entire agency, "Be aware that advances and improvements take time, but they do occur if you are persistent. Above all, enjoy and appreciate every day."

Lastly, he said: "Thank you, Thank you, Thank you—for all the great memories! I have so much respect and love for the people that carry out our mission. I just don't have adequate words! Best people in the world." □

NCTC

After 28 years with the Service, National Conservation Training Center (NCTC) Director **Jay Slack** retired on September 30. Slack was appointed the Director of NCTC in September of 2008, and spent a decade directing the wide-ranging training curriculum, education programs, many superb events, and the U.S. Fish and Wildlife Service Museum and Archives.

"I have had a great career in the U.S. Fish and Wildlife Service, and it has afforded me a wide range of opportunities to engage in complex natural resource challenges and lead the NCTC, which represents the Service's deep investment in its people." Slack said.

NCTC's Deputy Director **Steve Chase** is serving as Acting Director. (Chase wins Heritage Award, p. 34)

Before serving at the NCTC, Slack was the Deputy Regional Director in the Mountain-Prairie Region where he helped oversee operations on endangered species protection, prairie pothole conservation for migratory birds, and water and fisheries management in some of North America's greatest river systems, 12 national fish hatcheries and 110 national wildlife refuges.

Prior to that assignment, Slack was the project leader at the Vero Beach Ecological Services Office in Florida, where he also served as Chair of the South Florida Ecosystem Restoration Working Group. He received the Department of the Interior's Meritorious Service Award in 2005 for his efforts in Everglades restoration work. Before that, he was the Chief of the Endangered Species Listing Program in Headquarters. Slack also served as a herpetologist at the Phoenix Ecological Services Office early in his career.

"I am privileged to have worked with such a dedicated group of conservation professionals—the best in the world," he said. □

Southwest Region

Phillip Land has been named Special Agent in Charge for the Service's Office of Law Enforcement in the Southwest Region. In his new position, he will oversee field enforcement operations for the region, as well as the Indian Arts and Crafts Board investigative operations nationwide for the Service.

Phillip has 24 years of experience in law enforcement, including 16 years with the Service. Most recently he held the title of Assistant Special Agent in Charge for the Southwest Region.

He was raised in Ardmore, Oklahoma, and has a bachelor's degree in law enforcement administration, with a minor in criminal justice at the University of Oklahoma as well as a master's degree in criminal justice management and administration from the University of Central Oklahoma. He is a graduate of the Oklahoma Reserve Police Academy, Correctional Techniques Academy, FBI National Academy, Drug Enforcement Administration Academy and the Service's Special Agent Federal Law Enforcement Academy.

Phillip enjoys camping, fishing, ATV riding and vacation time with his family. He has been married for more than 25 years and has three children. □

Mary Elder, the new Assistant Regional Director for External Affairs (EA) for the Southwest Region, feels privileged to lead the regional EA team in public affairs, congressional affairs, tribal relations and internal communications.

Mary came to the Service from the National Cemetery Administration, Department of Veterans Affairs (VA), where she was chief learning officer and director of training & safety. Before that, she served as the speechwriter for the VA Under Secretary for Memorial Affairs, helping to tell the story of our national cemeteries and the veterans and families laid to rest there.

She is a proud Navy veteran who transitioned to civil service in 2001. In addition to the VA, she has worked at the Departments of the Navy (Navy Recruiting Districts Denver and Portland), Homeland Security (U.S. Coast Guard), and Agriculture (U.S. Forest Service (USFS) and Natural Resources Conservation Service (NRCS)). With experience at USFS and NRCS, Mary had long aspired to a position with FWS. "I'm thrilled to support our historic and critical mission," she said.

Mary is a St. Louis, Missouri, native and has been an ardent fan of Cardinals baseball since childhood. She and her better half, also a federal employee, are delighted about relocating to Albuquerque. □

Headquarters

After 35½ years with the federal government (15½ years with the U.S. Forest Service and 20 years with the Service), **Robert S. Eaton** retired October 31.

Bob began his career in 1982 in Alaska and worked on Tongass National Forest on Prince of Wales Island as well as the Metlakatla Indian Community in southeast Alaska. He had additional assignments on Olympic National Forest in Washington, the Southern Forest Experiment Station in Mississippi and Tennessee, Uncomphagre National Forest in Colorado and finally two duty stations on Cherokee National Forest in eastern Tennessee before transferring to the Service in 1998.

His Service career started in Florida as the administrative forester/zone fire management officer at St. Marks National Wildlife Refuge. After three years in Florida, he relocated to the Southeast Regional Office in Atlanta, Georgia, in 2001 and served as the regional wildland urban interface coordinator, deputy regional fire management coordinator and regional fire management coordinator. While serving in these positions, he provided regional oversight/leadership during both Hurricane Katrina in 2005 and the Mississippi Canyon 252 Oil Spill disaster in 2010.

In 2012, Bob transferred to the National Interagency Fire Center in Boise, Idaho, as the Deputy Chief of the Branch of Fire Management for the Service. After spending three years in Boise, he relocated to the Headquarters Office in Falls Church, Virginia, and spent the last three years of his career as the Deputy Chief (Management) for the Service's National Fire Management program.

All of these assignments have allowed him to manage natural resources in many beautiful national forests and refuges all across the nation. Bob also managed and fought wildland fires across the United States from Alaska to Florida.

One of the highlights of Bob's career was serving both as an original steering committee member for the Service's Fire Management Mentor program from 2000 to 2007 and mentor for numerous up and coming fire management professionals. Leadership development and mentoring has always been one of his passions, and he has always felt that it was his duty to pass on to future generations the same lessons taught to him by so many of his mentors over the years.

Bob said it's has been a privilege to work with the best of the best in the Service and would like to say thanks to all of the folks out there that have allowed him to "live his dream."

After retirement, Bob will enjoy spending more time with his wife, Wanda, daughter Savannah and son Robert Jr. in eastern Tennessee. He plans to catch up on managing his two tree farms in Davie County, North Carolina as well as doing some volunteer work at Erwin National Fish Hatchery. □

Chris Tollefson, press secretary to the Service's Director, has taken a job as Public Affairs Chief for BLM's head-quarters office.

In his 20 years with the Service, Chris was a public affairs officer, then Public Affairs Chief. Most recently, he served as press secretary to the Service's Director and as principal speechwriter for members of the agency's Directorate He also served as Chief of the Federal Duck Stamp Program.

In a farewell email, Chris highlighted just a few of the milestones he was privileged to play a "small part" in: the Service's response to the Deepwater Horizon spill, the Refuge System Centennial, the delisting of the bald eagle, the first Ivory Crush, getting to see black-footed ferrets return to where they were rediscovered in Wyoming. □

honors

Headquarters

PETER TURCIK

Bob Curry, Deputy Assistant Director for the Wildlife and Sport Fish Restoration Program in Headquarters, was recently awarded the American Fisheries Society Meritorious Service Award. The award goes to an individual for unswerving loyalty, dedication and meritorious service to the American Fisheries Society (AFS) over an extended time and for exceptional commitment to AFS's programs, ideals, objectives and goals.

Bob (seen with AFS President Steve McMullin (left)) has been a member of AFS since 1979 and has served the group admirably at many levels. He has chaired the Education Committee of the North Carolina Chapter and has served as that chapter's president. Bob also served as president of the Southern Division and as president of the Fisheries Administration Section. His service to AFS committees includes Local Arrangements, Outstanding Chapter Award, Time and Place, Nominating, Membership Concerns, Management and the Awards committees. Bob was the general chair of the 1999 AFS Annual Meeting in Charlotte, North Carolina. Bob's work in 2006–2008 as chair of the AFS Disaster Relief effort relating to Hurricane

Katrina was effective and critical for natural resources agencies and scientists affected by the storm. Bob was recognized by the society with the Distinguished Service Award in 2007 for his part in overseeing the American Fisheries Disaster Relief effort.

Throughout his AFS service, Bob has encouraged the professional development and AFS participation of students and young professionals, and he makes himself readily available to discuss their career aspirations and offers guidance based on his considerable experience. He embodies the values and virtues of the American Fisheries Society in all he does. Congratulations Bob Curry! □

Midwest Region

Nathan Eckert has received a Department of the Interior Exemplary Act Award for the rescue and resuscitation of a Service diver.

Nathan, himself a diver, rescued another diver while collecting mussel broodstock in the Mississippi River on October 12, 2017. The diver suddenly lost consciousness and sank beneath the surface of the water while trying to leave the water after a dive. Nathan swam the unresponsive diver to shore where he began CPR and rescue breathing until the diver resumed breathing again. Nathan continued to monitor the diver until EMS teams arrived. The fallen diver was hospitalized, regained consciousness and has made a full recovery.

After eight years as a mussel biologist at Genoa National Fish Hatchery in Wisconsin, Eckert transferred in August to Neosho National Fish Hatchery in Missouri as the assistant manager, filling a position that has been vacant for two years. □

Mountain-Prairie Region

©AFWA

Dr. Stephen Torbit, Assistant Regional Director of Science Applications for the Mountain-Prairie Region, was presented with a Special Recognition Award by the Association of Fish and Wildlife Agencies (AFWA) at its September annual meeting. Dr. Torbit (seen with 2017–2018 AFWA President Virgil Moore (left)) was honored for his dedication to collaborating with state resource management partners to identify and support shared wildlife management priorities and science needs for the Service and the states across the eight-state Mountain-Prairie Region as well as the broader 11-state sagebrush ecoregion.

"Dr. Stephen Torbit is a true leader in conservation," said Ed Carter, AFWA President and Executive Director of the Tennessee Wildlife Resources Agency. "Through his exemplary efforts and dedication to science-based cross-agency collaboration in the public interest, the association was pleased to bestow Stephen with this year's Special Recognition Award, a well-deserved honor."

AFWA specifically cited Dr. Torbit's leadership on multiple collaborative efforts with the Western Association of Fish and Wildlife Agencies to coordinate science within and across agencies, fill key data gaps, and provide decision support capability for both the Service and state agencies.

Recipients of AFWA's Special Recognition Awards are determined by a committee of state fish and wildlife agency directors. □

Tom Koerner, project leader at Seedskadee and Cokeville Meadows National Wildlife Refuge Complex in southwestern Wyoming, has been named Trout Unlimited's 2018 Conservation Professional of the Year.

This major award from a national partner recognizes the contributions Tom and his staff have made to coldwater fisheries conservation both on the complex and on the larger landscapes of the Upper Green River Basin and Bear River watershed. Importantly, in honoring Tom, Trout Unlimited acknowledged both his technical efforts and his ongoing work to create connected conservation constituencies. His skill as a wildlife photographer means that Tom's work is frequently shared online and in social media, giving everyone a stake in conservation.

In related news, Tom and his staff recently received an Excellence in Wildlife Conservation award from the Wyoming Game and Fish Department, underscoring the strong partnerships the complex has built in southwestern Wyoming. □

in memoriam

Northeast Region

Thomas Custer, formerly research wildlife biologist with the Service's Patuxent Research Center from 1974 to 1993 passed away. Tom was first stationed in Laurel, Maryland (Patuxent Wildlife Research Center) before moving to Texas as the leader of Patuxent's Victoria field station in 1984. Tom transferred to the USGS Upper Midwest Environmental Sciences Center in La Crosse, Wisconsin, in 1991 where he continued his research on environmental contaminant effects on wildlife. His study sites spanned the breadth of the continental United States with research on arsenic, lead, mercury, pesticide and hydrocarbon effects on birds. He consistently involved Service environmental contaminant specialists in his research studies and included them as co-authors in his publications. □

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parting shot

Winner

An acrylic painting of a wood duck and decoy by Scot Storm will grace the 2019–2020 Federal Duck Stamp, which will raise tens of millions of dollars for habitat conservation after it goes on sale in June 2019. This is the second win in the Federal Duck Stamp Contest for Storm, an artist from Freeport, Minnesota. His artwork previously appeared on the 2004–2005 stamp.

SCOT STORM

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